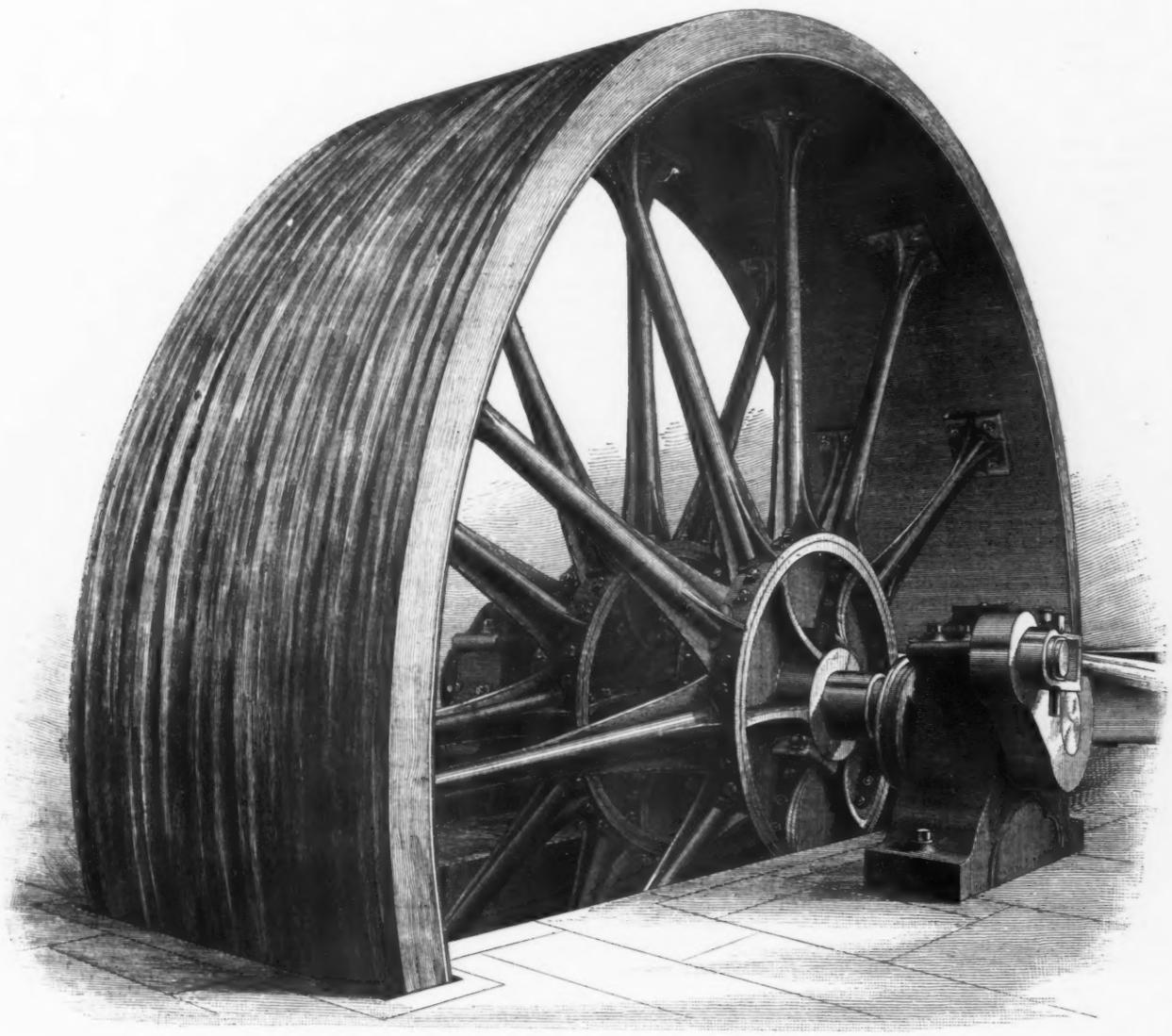
THE IRON AGE

THURSDAY, APRIL 14, 1892.

A Mammoth Wooden Fly Wheel.

Our readers will recall the bursting of the 30-foot fly wheel at the Amoskeag Mills, Manchester, N. H., last fall, full accounts of which were published at the time. This wheel has been replaced by the one we here illustrate, which is probably the largest wooden-rimmed wheel in the world. It was designed by the superintendent of the mills, Charles H. Manning, and was built in their own shops. This wheel is 30 feet in diameter, 108¼ inches face, 12 inches thickness of rim and weighs 104,000 pounds. There are two sets of iron hubs and arms, each hub being made in two parts, 7¾ feet in diameter, 28 inches in length and 20 inches face. The arms, of which there are 12 in each set, are circular in section, 8¾ inches in diameter at the large end and 6 inches at the small end, and are formed with projecting webs, as shown. At their outer ends are plates 20 by 24 inches, which are bolted to the rim by eight bolts 1 inch in diameter. Each arm is secured to the hub by four bolts 1¾ inches in diameter. The rim is made up of 44 rings of Western ash, each ring being in 12 sections, each of which is secured by 16 lag bolts. Between each set of arms there are four ⅞ inch bolts extending through the rim from side to side. The cranks and connecting rods are balanced by plugs placed in the ends of the hollow spokes opposite the cranks. This work was done so well that the wheel has been run up to a speed of 76 revolutions per minute without showing the least indication of distortion. To form the rim 20,000 feet of ash were used and 18,000 4 x 7/16 inch lag screws. The segments are attached to each other with glue and lag screws and by the through bolts. As a further precaution narrow openings were left between the ends of the segments into which were driven well-fitted wedges soaked in boiling glue. In building the wheel, the first hub and its arms were put in place, revolved, and a score mark made on the ends of the arms. In line with this score the 12 sections of ash were bolted, the joints breaking over the ends of the arms. The next ring of ash was glued and lag-screwed to this. This was continued until the other set of arms was reached. Each ring was finished before starting the next. The whole pulley was turned while in place. The wheel is driven by engines having a diameter of cylinders of 36 inches, stroke of 6 feet, and is intended to be run at a speed of 61 revolutions.

We may add that Mr. Manning is now building another fly wheel having unusual features. The center and arms will be of cast iron, and the rim, 14 feet in diameter, 30 inches face and 12 inches thick, will be composed of 24-inch plates of ¼-inch mild steel, riveted through and through.



A MAMMOTH WOODEN FLY WHEEL.

The shipping of the Maritime Provinces has declined rapidly during the past eight years, and there appears to be no immediate prospect of an improvement in the situation. In 1884 Nova Scotia had 3019 vessels, aggregating 543,835 tons, whereas the present fleet numbers only 2775 vessels, of 462,304 tons. In 1884 New Brunswick had 1096 vessels, of 307,762 tons, while at the present time she has only 980 vessels, of 194,400 tons. The Prince Edward Island fleet has fallen off from 234 vessels, of 39,213 tons, in 1884, to 195 vessels, of 23,350 tons. Thus it appears that in eight years the shipping of these provinces has declined to the extent of 210,756 tons from a total of 890,810, or nearly 24 per cent.

The Firing Speed of Machine Guns.

This question is answered by Hiram S. Maxim in a recent communication to *Engineering*, from which we take the following:

The first automatic Maxim gun, which was submitted to an official test at Enfield, was claimed to fire 600 rounds a minute, using the Royal Laboratory machine gun cartridge. At the trials 1000 cartridges, all in one belt, were fired in one and one-half minutes. This would give a speed of 666 rounds per minute. The Royal Woolwich cartridges, considered from all points, are perhaps the most perfect cartridges to be met with to-day. Of over 200,000 rounds which I myself have fired, I have only found one faulty cartridge, and this missed fire on account of not having any fulminating powder in the primer. At the official trials in Switzerland, where the German Mauser cartridge was used, the official speed was 612 per minute. At the Italian trials, which took place with the same cartridge at Spezzia, the rate of fire was found to be 620 per minute. The French cartridges, which had been made seven or eight years, were found to fire at the rate of about 500 per minute; those which were only two or three years old, at the rate of 600 a minute; while with those that had only been made a few weeks, the rate of fire amounted to nearly 700 per minute. At the Austrian trials with the old Manlicher cartridge, the rate of fire was 620 per minute. With the new Austrian cartridge with compressed powder, a speed as high as 770 per minute was attained. With the Russian Berdan cartridge, made on the old-fashioned plan, having a hollow rim, 1000 rounds were fired out of a single belt in 2¼ minutes. This was the slowest of all European cartridges except those made in Italy for the old Vetterli rifle, which were found to be very imperfect, and the rate of fire in some cases did not exceed 300 per minute. In Spain, cartridges were found which were so bad that they could not be fired at all with an automatic gun. In Germany, the rate of fire varies according to the kind of cartridges which are employed, and ranges from 600 to 700 per minute. Of all the black-powder cartridges, the American service cartridge has been found to attain the highest speed. This arises from the fact that the cartridge is small and short, the powder compressed, and the primers very large. At trials which took place in England with this cartridge the rate of fire was 742 per minute. At trials which took place in the United States, in which new cartridges made by the Union Metallic Cartridge Company were employed, the rate of fire was 775 per minute. This was the highest rate of fire ever attained by an automatic gun deriving all of its energy from the recoil. After the Maxim gun had been formally adopted into Her Majesty's service it was found necessary to provide some means of operating them with blank cartridges, as these, of course, did not give sufficient recoil to operate the mechanism. Attachments were then put on to guns which were required for the maneuvers, in which the escaping gases at the muzzle of the gun produced an action upon the barrel similar to that of recoil. The first of these guns was made for the Easter maneuvers some five years ago, and the first cartridges experimented with were loaded with 60 grains of black powder, the rest of the case being filled with tallow, but the rate of fire was so enormously high that the powder charge was reduced to 42 grains, and with this the rate of fire fell to about 600 per minute. About two years ago, while we were experimenting with the French Lebel cartridges in Paris, I had a gun constructed to utilize the force of the escaping gases at the muzzle for operating the mechanism. The number of cartridges which the officer brought to the trial was only 200; consequently only small belts were used. Upon placing a belt of 20 cartridge in the gun and pulling the trigger, I remarked, "The gun has stopped; it does not work," whereupon my French assistant pulled the belt out and said, "It is quite empty." My ear had been accustomed to a fire of about 600 per minute, and the usual belts that we first try a gun with hold only ten cartridges. These 20 Lebel cartridges had gone off in just about the time that ten English cartridges would have been fired. The speed was found to be somewhere between 1100 and 1200 rounds per minute, and the officer in charge decided that the rate of fire was altogether too high, expressing the wish that we should seek to reduce the rate of fire rather than to increase it. It is a curious fact that the German and French committees, acting quite independently of each other, expressed their opinion that the most desirable rate of fire would be 250 per minute, and guns were, in fact, made for these two nations provided with regulators, but it was found that the mechanism necessary to reduce and regulate the speed of a gun was quite equal to all the rest of the mechanism in the arm. The first one-pounder Maxim guns fired at the rate of 400 shots per minute. The speed was afterward reduced to 300 per minute.

The effect of very rapid firing upon the chamber and rifling of the gun is most marked. In Austria, when a gun was fired at the rate of about 600 per minute with steel-covered bullets, and the fire was often stopped to replace the ammunition boxes, it was found that the gun made as good a target after 20,000 rounds had been fired as it did upon starting, while with a speed of 670 per minute, with practically no stoppages, the bore was considerably injured after 10,000 rounds had been fired. During all of the Austrian trials with the Maxim gun, 200,000 rounds of ammunition were used, the greatest number fired at one time from a single gun being 35,000.

As regards the speed that it might be possible to attain with a single-barreled gun, I would say that probably if both the gun and cartridge were made expressly for producing the highest possible rate of fire, and if the recoil energy, together with the escaping force of the gases, were both utilized, 1500 to 1600 rounds a minute might be fired, but at this speed the barrel would be very highly heated, even if inclosed in a water casing.

Machine guns which are operated by hand are as a rule provided with more than one barrel, and perhaps the greatest absolute speed that ever has been attained was with a 12 barrel Nordenfelt gun, in which each barrel was fired 100 rounds per minute, but this feat can only be accomplished by a very powerful and trained athlete. The Gatling 10 barrel gun did not, I believe, fire over 400 rounds a minute at the Shoeburyness trials, but it is said now to fire at the rate of 100 rounds per barrel per minute. The greatest speed ever attained by a single-barrel hand-operated machine gun was when Gardner himself fired 250 rounds per minute. The Nordenfelt 5-barrel gun, such as is used in the British Navy, may be fired with three trained operators about 400 to 500 rounds per minute. At the Swiss trials the 2-barrel Gardner gun, with four men to operate it, fired 333 rounds in a minute. As far as guns of larger caliber are concerned, perhaps the highest rate of fire ever attained with one man loading and firing was in France, about three years ago, when I myself succeeded in firing 40 rounds in 50 seconds. The gun was a 3-pounder, and the cartridges about 21 inches long.

San Francisco News.

We have just closed a week the greater part of which was a succession of rains and storms The only results as far as yet heard from have been beneficial; everywhere the crops have been benefited and a year of exceptional prosperity is confidently predicted. Primarily for the whole State, and consequently for San Francisco, that it will lead to a greatly improved business in this city is past any doubt, yet what may be the extent of the improvement, even should the most favorable prognostications as to the character of the year prove correct, is, to say the least, somewhat doubtful. San Francisco is to a certainty not especially favored by the railroad, and every year our merchants are feeling it more and more. Things have gone so far that it is whispered that a couple of leading firms in the hardware business have made up their minds to retire unless things take a turn for the better, and if, as is alleged, the trouble is discrimination as to railroad freights, it is hard to see how matters can be improved. Doubtless there is some exaggeration in these flying stories, but there must be some substratum of truth to give rise to them. As to how far they may be justified, of course, events alone can tell. During the week the rains interfered with trade, but the demand for agricultural implements, the weather being taken into consideration, has been good, that for hardware fair, and that for merchant iron moderate. The nail market still remains very dull, and though this is the season when demand should be active, it is for some unaccountable reason unusually light. The base price is with discount still $2.40 per keg. We continue to receive large consignments by sea, the last arrival from New York having 4000 kegs on board. We have received 27,223 kegs in this way already, and this points to a supply of over 100,000 kegs by sea during the year, not a pleasing prospect for our local factory, however our farmers and builders may regard it.

The city of Stockton will show up well this year in the manufacture of agricultural implements, and is becoming year by year more and more important in this regard. The Stocktonians have the advantage of possessing natural gas as fuel, rents are not high, neither are taxes, and they are close to their market, so that transportation does not cut so great a figure as it might. All these things render it a formidable competitor with Eastern agricultural machinery brought from San Francisco, and there can be no doubt that in the contest it is bound to win. It contains at present six agricultural implement works. The output of these in 1891 was $1,208,000; the number of employees, 348; the wages paid during the year, $246,000. This is not a bad showing for a young city like Stockton. When we add the output of the works at Benicia and San Leandro, and the small ones elsewhere, we will find that the output of agricultural implements in this State is fully equal to the importation. And yet it does not seem so very long ago since almost everything in this line was imported from the East. If the cost of raw material was less we could successfully compete with the East in many lines. The labor problem will settle itself. In fact, it is rapidly doing so now.

Imports by sea for the past two weeks have not been very large.

Imports by rail continue of goodly volume. For the past two weeks they have embraced 72 cars, consisting of 8 cars of agricultural implements, 14 cars of iron, 7 cars of Hardware, 20 cars of machinery, 1 car of plates, 5 cars of stoves, 4 cars of safes, 1 car of wire netting, 1 car of scales, 1 car of axles, 1 car of steel, 1 car of cable,

3 cars of wire, 1 car of pipe, 3 cars of wagons, 1 car of plows. We had besides 4732 pounds of copper, 6521 pounds of spelter, 470 pounds of zinc, 16 kegs of nail.

Our tin mine at Temescal is beginning at last to assume its due prominence in the eyes of the world. The receipt of 334 pigs, 22,000 pounds, or one carload, at New York on March 30 was considered of sufficient importance to telegraph half a column across the continent concerning it. The shipment was the result of the work of two weeks with one smelter. As it has to compete at New York with Straits tin it is evident that at present it should be sold to better advantage in this city, where the price has lately advanced slightly, being now 21½ cents per pound. We use here annually the product of about 200 days' run. If, however, all the present output at Temescal was thrown on the market there it would doubtless soon, in consequence of competition with the Australian article, put prices pretty low. It is, therefore, better, all things considered, to send it to New York. The local market both for tin and tin plate is at present quiet. The latter has declined to $5.20 per box in consequence of recent large arrivals.

Norton Bros. Tin-Plate Works.

Norton Bros., of Maywood and Chicago, Ill., now have the buildings nearly completed for their new tin-plate works at Maywood. The tinning house is 40 feet by 315 feet and will contain about 25 stacks. The pickling room is 52 feet by 85 feet. The storehouse for black plates is 30 feet by 100 feet. The storehouse for finished plates is 60 feet by 60 feet. The machinery for the plant is being built and will be rapidly put in place after the buildings are finished. Gray's pickling machine will be used, but all the other machinery is of Norton Bros. own design and manufacture. Tin plate has been made at the Maywood works in a limited way, but very regularly, for months past. As is well known, the aim of Norton Bros. has been to introduce an automatic method of manufacturing tin plates so as to avoid both the dependence on highly-skilled labor and the excessive manipulation of tin plates by hand according to the methods now commonly pursued. Tedious and costly experiments were found necessary, and much more time was consumed in perfecting the process than had been anticipated. The erection of the large plant now undertaken is an emphatic notice to the trade that the difficulties have been surmounted, and that tin-plate making will shortly be in progress on a commercial scale according to American ideas of manufacturing.

A New Etching Process.

A new process of attacking metals by means of acids, by which intricate and beautiful designs can be produced, has been introduced by Wm. Hyland of New Haven, Conn. It is a common method of ornamenting metal to apply to the surface a coating in such a way as to leave exposed the surface of the metal which it is desired shall be acted upon by acids or by the electroplating process. The coating ordinarily employed is destroyed when the metal is placed in what is generally called "ormolu dip," which is a very strong and hot acid bath. The essence of this new process is found in the coating employed, the acid-resisting properties of which are such that after the metal has been coated it is simply placed in the bath and allowed to remain there until the desired effect is produced, which is a granulated or what is termed a satin or ormolu finish. The surface coated, of course, retains the natural finish of the metal. It is evident that the process can be employed so as to produce a natural surface on a treated ground, or the reverse. With the process designs of the most elaborate description can be obtained.

The Philadelphia Copper Mill Company.

This comparatively new enterprise, which under the name of the Bailey & Storey Philadelphia Brass & Copper Rolling Mills was organized in 1889, and commenced operations in July, 1890, under the copartnership of Josiah F. Bailey and Robert K. Storey, for the manufacture of brass and copper sheets, was on the dissolution and liquidation of the firm twelve months later, reconstituted under its present title, and incorporated under the laws of the state of Pennsylvania, recommencing operations in September last, with J. F. Bailey as president and George Snyder as secretary and treasurer. It is at present the only establishment of its class in the district, with the exception of one in Baltimore, and the Pittsburgh mills. We are informed that their shipments of copper sheets during March exceeded by 30 per cent. those of any previous month and their books record a proportionately large and steady advance ever since the manufacture was inaugurated by them.

The mills are placed at Olney Station, on the Northern Pennsylvania branch of the Philadelphia and Reading Railroad; a siding connects them directly with the main line, thereby giving facilities for the shipment of goods in all directions, while, being within a short distance of Philadelphia, the company's own teams are able to haul supplies to consumers in the city and circumjacent districts. The acquisition of a considerable space of ground around the works gives ample space for the extension of buildings and plant contemplated in the near future; and from a spring-fed lake on the property water power can be used as an auxiliary motor, the water being raised through the medium of a pumping engine to a large elevated tank of a capacity of from 25,000 to 30,000 gallons.

The mill buildings were first erected in 1891. Additions to the original fabric have been gradually made, and extensive improvements are now being meditated, in order to keep pace with the growing business.

All the metal used by the Philadelphia Copper Mills is obtained from the smelting works on Lake Superior, and is, as a rule, received in cakes 14 x 19 inches, of an average weight of 175 pounds, though some large 700-pound cakes are occasionally consigned to them for special purposes, such as the manufacture of large tank sheets, &c.

This material, after passing through the breaking down furnaces and being brought to a cherry-red heat, is worked up through the different processes of hot-rolling, cold-rolling, annealing, pickling, tinning, polishing, trimming and leveling, &c., according to the various purposes for which it is destined—emerging in the forms of finished sheets of divers qualities and dimensions, known to the trade as "soft copper"—used for bathtubs, sinks, &c.;—"heavy soft"—for building purposes; "cold-rolled"—for cornices, &c.; "sheathing"—for coating ship's bottoms and for other purposes; and other special kinds, such as extra fine quality sheets for engraving plates, which is a large branch of business with the firm, also "circles" and "flats" for the bottoms of tea kettles and boilers, these latter being made of cold-rolled copper, tinned on one side, of a uniform weight of 14 ounces per square foot. The copper sheets are manufactured in about 30 different thicknesses, varying from 0.005 inch, which weighs but 4 ounces to the square foot and possesses the tenuity of a sheet of note paper, to about $\frac{7}{16}$ inch, and are made in any length and breadth required. A short time since a sheet 20 feet in length by 5 feet 6 inches wide and ¼ inch thick, weighing 1200 pounds, was turned out to the order of a Philadelphia customer. This is the largest hitherto made at the mills.

The present plant in active operation comprises four large heating furnaces, four sets of hot rolls and two of cold rolls, each of the rolls weighing 13,000 pounds; two annealing furnaces, a tinning furnace, chop shears, hydraulic leveler, finishing trimmer and other machines. The boiler room contains four tubular boilers each of a capacity of 100 horse-power, and all the machinery is driven by a powerful 450 horse-power engine. Bituminous coal is used, having been found to answer the purpose more satisfactorily than any other fuel. The polishing buffs used for finishing the extra quality sheets, tinned on one side, turn out brilliantly burnished plates, which are used for fancy work of various kinds. The mills have all along been running at full work during the day time, and only the finishing trimmer machine, which cannot at present keep pace with the rolls, is kept at work until late at night after the steam power is stopped, being run by a small water motor specially fitted to it and connected with the tank above mentioned, thereby economizing fuel and labor in keeping up fires.

The current output of copper sheets reaches 5000 pounds a day. Additional machinery has been ordered and is expected to be set up and in operation in about a month; and it is anticipated that ample work will be found for it.

All the various operations, from the breaking down of the raw material to the packing in wooden cases, are carried out on the premises. The company refine all their own soft scrap, and are contemplating the erection of the necessary plant for smelting their slag, which on analysis has been found to contain from 70 to 75 per cent. of metal. All the tinned scrap, being more difficult to refine, is made up into what is technically known as "cabbages," packed in hogsheads and sold to the makers of metallic paints.

The most important contract at present on hand is that for the supply of the copper work required for the new Philadelphia and Reading terminal depot at Twelfth and Market streets, Philadelphia, for which over 75,000 pounds of copper have already been delivered, in cold-rolled sheets, 30 x 96, 16 ounces to the square foot. A quantity of heavy copper has also been recently forwarded to Baltimore for the new cruisers building there for the United States Navy. The company's largest fields of supply just now are New York and Pennsylvania, but their products are also shipped in considerable quantities to all parts of the continent, consignments having been forwarded as far as Colorado in the West and Florida in the South.

In addition to the office attached to the mills at Olney, the Philadelphia Copper Mills Company have a city office at 257 South Fourth street, Philadelphia. O. Kinsley is the general manager of the Olney works.

The Fifty-five-Hour bill, which has just become a law in New Jersey, will, according to some representations, work a hardship on many of the boys and girls and women employed in New Jersey industries. It was strongly recommended by the labor organizations of Paterson and Newark. The law makes ten hours a day and five on Saturday the period of labor that boys and girls under 18 and women of all ages shall be employed after July 6.

The Naylor Hydraulic Traveling Crane.

Two of these cranes, which were invented by Ernest W. Naylor of Cleveland, Ohio, are now in successful operation in the Juniata shops of the Pennsylvania Railroad at Altoona. They are working with a water pressure of 1500 pounds to the square inch and are used over the hydraulic riveters. They have been found to be especially well adapted to this work, as it is easy to lift or lower the load to within $\frac{1}{32}$ inch. This accurate adjustment insures perfect riveting, as the rivet can be closed up square on the center line.

The track girders and bridge are of the usual construction. The bridge carries hydraulic cylinders and a motor, which co-operate with each other and with other parts in producing the different movements common to traveling cranes, the water being taken to and from the cylinders and motor through suitable connections. The track girders A A^1 are supported at the desired hight above the floor. The bridge B is moved along the tracks by two pairs of oppositely-acting hydraulic cylinders and plungers, placed one pair at each end of the bridge. By connecting one cylinder of each pair with the pressure column and the other with the exhaust column the bridge is moved in one direction or the other, as the case may be. This arrangement insures the keeping of the bridge in proper alignment, and the movement is made with the minimum of friction.

The two cylinders, C C^1, Figs. 1 and 2, lie parallel to the track girders and are secured by brackets to the end of the bridge. Entering one cylinder from one end and the other cylinder from the opposite end are plungers made in the form of pipes which are rigidly secured to the girder. The inner ends of the pipes being open, they serve not only as plungers but as parts of the conveying system lead-

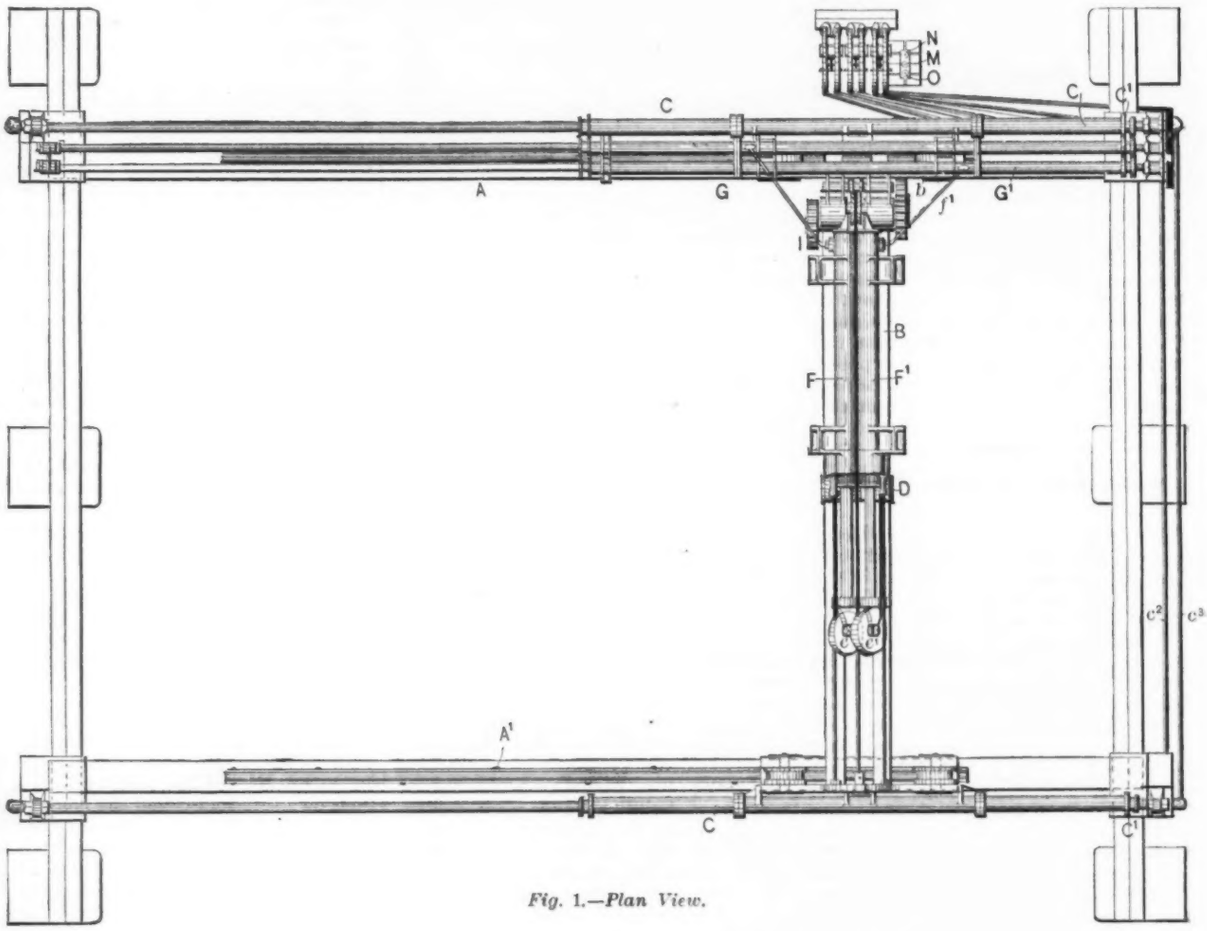


Fig. 1.—Plan View.

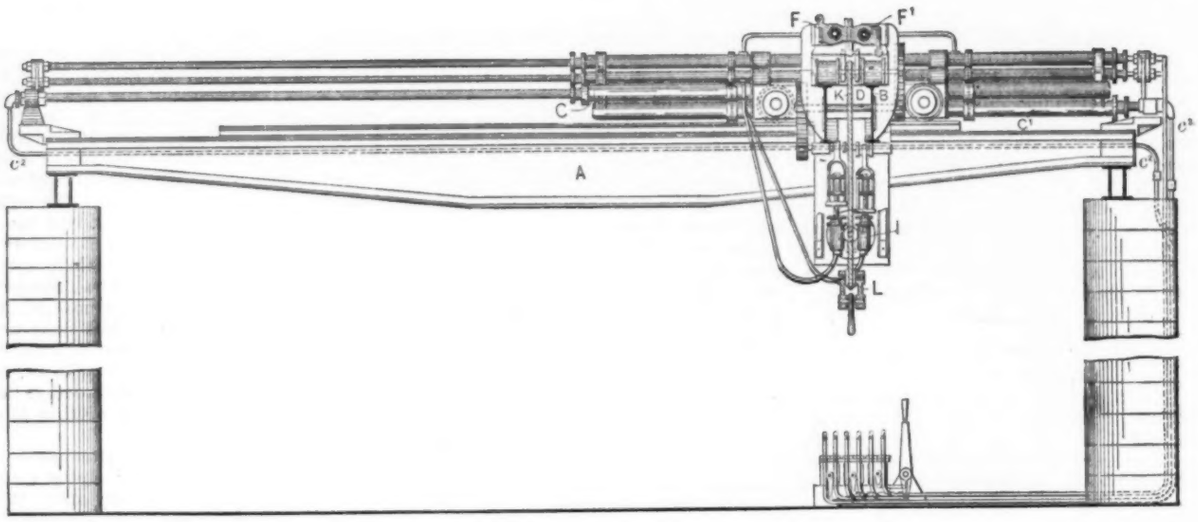


Fig. 2.—Side Elevation.

THE NAYLOR HYDRAULIC TRAVELING CRANE.

ing from the pressure and exhaust columns. The pipes c^2 c^3 connect the ends of the plungers, respectively, with the hydraulic accumulator or its equivalent. When it is desired to move the bridge B toward the right in Fig. 1 the valves in the pipes c^2 c^3 are turned in such a manner that the water flows from the accumulator through the pipe c^3 into its plunger, and from thence into the cylinder C, and the water in the cylinder C^1, being forced out through its plunger and the pipe C^3, escapes through the valve in the last-named pipe. When the valves are in the reverse position the bridge moves in the opposite direction. The valves in the pipes are three-way valves, and both of them are connected with a single lever whereby either may be opened to permit the flow of water from the accumulator, while the other valve is simultaneously moved to a position where it permits the escape of water through itself; or both valves may be closed, when the bridge is held in a fixed position. The lever marked M in Fig. 3 is the lever which may be operated with the above-described results upon the valves and consequently upon the bridge. The levers marked O and N are similarly connected with the valves in the supply pipes through which the water flows to and from the hoisting mechanism and the trolley mechanism respectively.

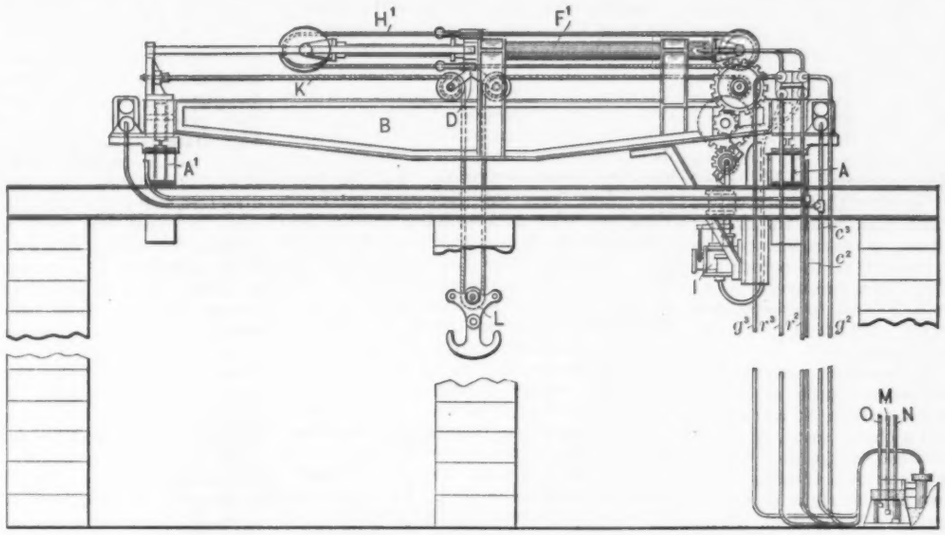


Fig 3.—End Elevation

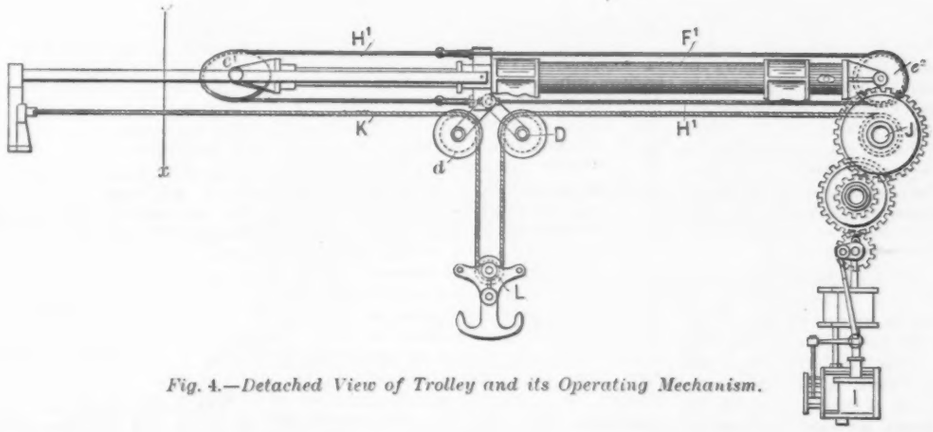


Fig. 4.—Detached View of Trolley and its Operating Mechanism.

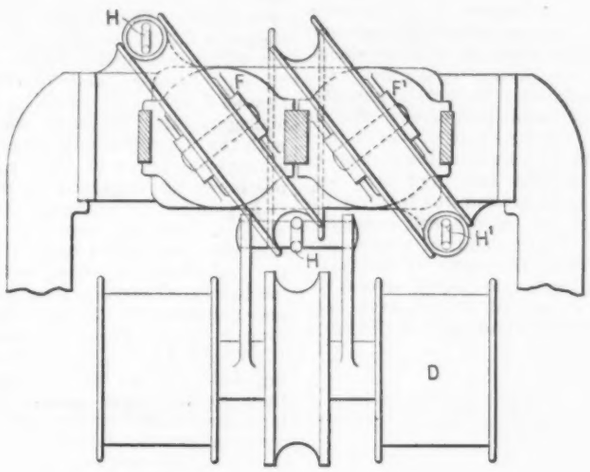


Fig. 5.—Section on Line x x of Fig. 4.

THE NAYLOR HYDRAULIC TRAVELING CRANE.

The trolley D is provided with suitable wheels which run upon tracks extending lengthwise of the bridge. Two cylinders, F F^1, are secured to and at one end of the bridge parallel with the tracks thereon, and, as shown, above the trolley. Projecting from each of the cylinders F F^1 is a ram, and each ram has a crosshead at its end, in which is carried one of the inclined sheaves, as shown in Figs. 4 and 5. The chain H is secured at one end to the cylinder F by means of an eyebolt, and after passing under the sheave is fastened at its other end to the trolley. Another chain, H^1, secured at one end to the cylinder F^1 by means of the eyebolt, passes over the other sheave, then around the vertical sheave, and its other end is secured to the trolley. When one ram is moving out of its cylinder the other ram is being forced back into its cylinder, thus moving the trolley. The reverse movement of the rams moves the trolley in the opposite direction.

The means shown for admitting water to and permitting its escape from the cylinders F F^1 consist of two cylinders, G G^1, Fig. 1, secured to one end of the bridge and lying parallel to the cylinders C C^1.

Through each of these cylinders G G¹ passes one of the telescoping pipes, which are supported at their ends above the track girders by suitable brackets. Each of the telescoping pipes is plugged near its middle and water is admitted to and escapes from these pipes through the supply pipes g^2 g^3, Fig. 3, which are connected with the accumulator.

Near the plugs and in the parts of the telescoping pipes which are always covered by the associated cylinders are suitable openings, through which water passes from each of the pipes into its associated cylinder, and from thence to the cylinders F F¹. As before explained, the valves in the pipes g^2 g^3 are connected with a hand lever N in such manner that both valves may be closed and thus hold the trolley in a fixed position, or the valves may be opened in such manner as to permit the water to pass from the accumulator to one of the cylinders F F¹ and to escape from the other cylinder, and thus move the trolley in either direction.

The hoisting and lowering apparatus includes a reversible hydraulic motor, I, Figs. 1, 2, 3 and 4, which is carried by the bridge B, and a chain barrel, J, which is also mounted on the bridge and is connected with the motor by a suitable chain of gears, as shown at the right of Fig. 4. As shown, about five revolutions of the crankshaft of the motor are necessary to revolve the chain barrel once, whereby the load on the chain K may be carried through as short a distance as required. The chain K, extending lengthwise of the bridge, is fastened thereto at the end opposite to that which carries the hydraulic motor. This chain passes over a sheave, *d*, on the trolley, down around a sheave in a block, L, up over a second sheave on the trolley, and thence to the chain barrel, by which it is taken up. Suitable pipe connections lead from the motor to the accumulator, so that it may be operated in either direction for the purpose of raising or lowering the load.

The Census Office at Washington has recently published a bulletin giving the statistics of manufactures of the city of St. Louis, Mo., for the fiscal year ending May 31, 1890. The work was prepared under the direction of Frank R. Williams, special agent in charge of Statistics of Manufactures. Ten years' increase is shown by the following comparative table:

	1890	1880
Number of establishments reported	6,148	2,924
Number of hands employed	93,610	48,125
Capital invested	$140,775,392	$50,832,885
Miscellaneous expenses	17,587,215	.....
Wages paid	53,165,242	17,743,532
Cost of materials used	122,010,805	75,379,867
Value at factory of goods manufactured	228,714,317	114,333,375

The table presented below shows the changes in the iron and steel industry of St. Louis:

	Year.	Number of establishments reporting.	Capital.	Average number of hands employed.	Total amount paid in wages.	Cost of materials used.	Value of product.
Foundry and machine shop products	1880	62	$3,605,713	3,466	$1,854,046	$2,700,844	$5,952,770
	1890	103	10,184,926	6,345	3,877,946	5,095,621	11,945,493
Iron and steel	1880	10	5,960,600	2,268	616,575	2,823,058	3,950,530
	1890	6	2,655,199	940	526,998	1,583,648	2,513,761
Iron and steel: Bolts, nuts, washers and rivets	1880	4	235,000	137	60,498	301,937	493,500
	1890	4	225,253	175	48,767	147,823	248,941
Iron work, architectural and ornamental	1880	10	57,400	83	38,610	57,220	131,010
	1890	23	1,732,748	1,015	644,127	880,039	2,023,526

It will be seen that while the general prosperity was good, there has been a heavy falling off in the iron and steel industry, although there has been a notable increase in the manufacture of manufactured iron and steel and foundry and machine shop products.

The Failure of Carl Bolckow.

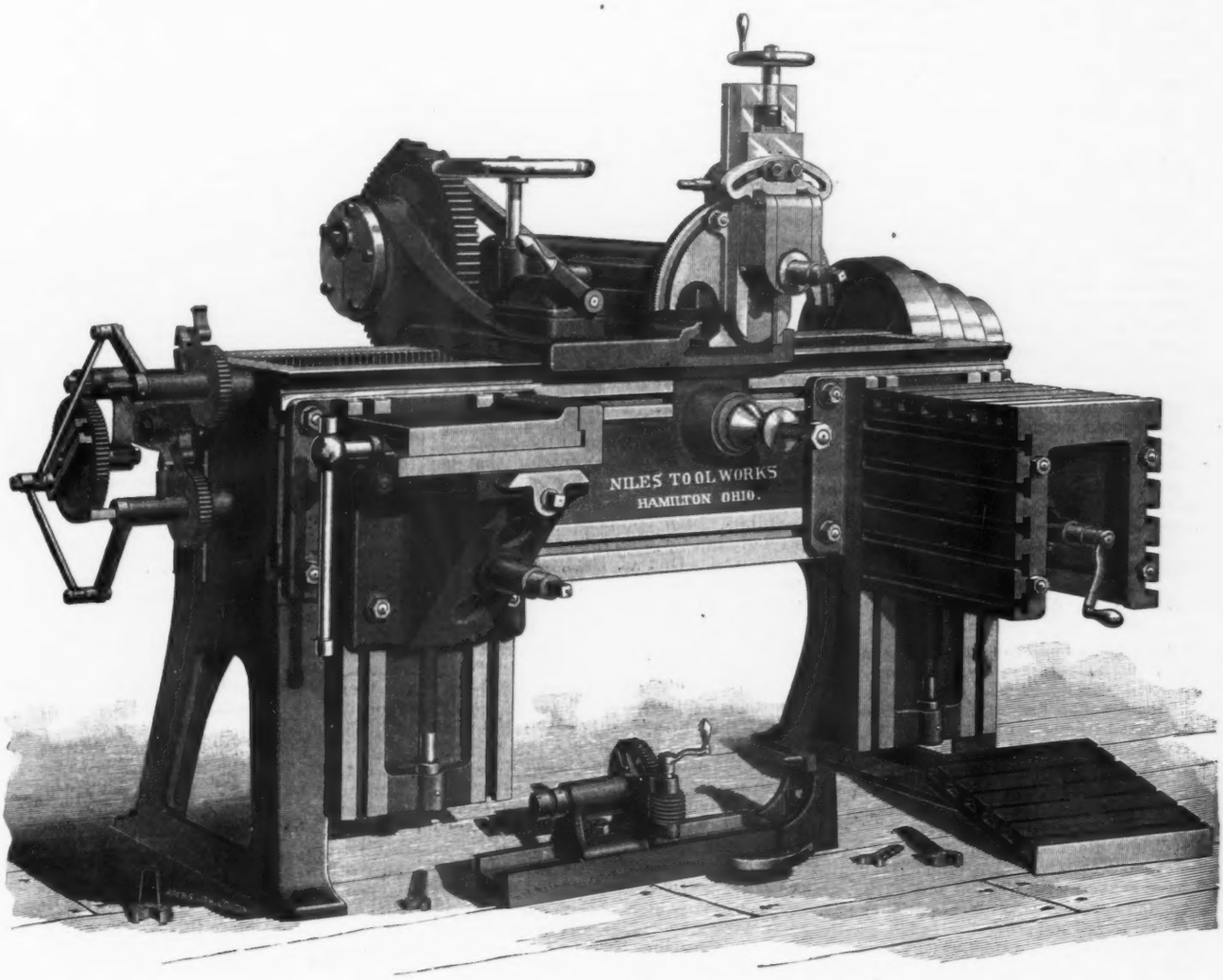
During the past 35 years the name of Bolckow has occupied a conspicuous and honorable place in the English iron trade. The late H. W. F. Bolckow and John Vaughan were the first ironmasters on Tees side. They commenced business as iron manufacturers even before the vast deposits of ironstone imbedded in the Cleveland hills had been discovered. The two partners first met at Newcastle-on-Tyne. Vaughan, who as a working puddler had trudged from the neighborhood of Worcester to Tyneside, was a works manager for Messrs. Bell when he met Bolckow, who at that time was worth several thousand pounds, which he had made as a corn importer. Bolckow was the son of a Mecklenburg farmer, and he knew a good deal about the value of wheat, but had no special knowledge of the iron industry. Still, his capital and commercial aptitude, and Vaughan's technical skill, enabled the pair to start in a small way as iron manufacturers at Middlesborough. They sold iron to blacksmiths, wheelwrights and others purchasing small quantities. But the business did not pay, and in a few years was witnessed the strange spectacle of infuriated workmen chasing bailiffs out of the establishment. In that crisis Joseph Pease, who had been instrumental in constructing the first public railway, came to the rescue of Bolckow & Vaughan. Soon afterward an ironstone seam some 4 feet thick was discovered, and thus the foundations of the colossal concern now known as Bolckow, Vaughan & Co. were firmly laid. Mr. Bolckow was elected the first member for Middlesborough, and after his death his statue was unveiled by the late Lord Frederick Cavendish. Yet it would seem that a wish which Bolckow fondly cherished is not to be realized. He amassed heaps of gold; he built himself a magnificent mansion, and he gave Mr. Agnew a permanent commission to buy "modern masters" for him. Bolckow desired to perpetuate his own name—to give it an abiding place among the great county families of England. He had no son or daughter, so he bequeathed the great bulk of his fortune to his nephew, C. F. H. Bolckow. This gentleman, whose failure is now announced, has been no reckless spendthrift. He has always lived quietly and without ostentation. In fact, he has often been railed at for his parsimony. But he very properly retorted that he was obliged to live within his means. It was true he dwelt in a marble hall, and was surrounded by splendor and luxury, but the conditions of his uncle's will compelled him to go on buying land, in order to permanently endow the name of Bolckow. Thousands of acres, including several villages in the vicinity of Thirsk, have been bought by Mr. Bolckow; and as the interest on land has been very low of late years, and the dividends paid by Bolckow, Vaughan & Co. have fluctuated considerably, it is feared that Mr. Bolckow's income has become terribly restricted. Not only is he chairman of Bolckow, Vaughan & Co., but also of the Forcett Railway Company and Sadler & Co., Limited, and a director of the Employers' Liability Assurance Corporation, Limited; the Industrial and General Trust, Limited, and the Otis Steel Company, Limited. He is also the principal partner in the firm of Downey & Co., ironmasters, who suspended payment some days ago. Bolckow, Vaughan & Co. have not made an extravagant profit during the past 12 months. The share capital is £3,218,000, but the profit has been only £74,441, as against £317,000 in 1890. Mr. Pochin, one of the directors, says the turnover has been as large as usual, but high wages have rendered a fair profit impossible. The dividend declared, 2½ per cent. for the year, as compared with 6 per cent. for the two former years, is only paid by the withdrawal of £30,000 from the reserve fund, which is thus reduced to £120,000. Still, there is no reason why there should be a panic in the iron trade. Mr. Bolckow is the victim of untoward circumstances, and the dead man's hand has rested too heavily on him. Had his uncle's will permitted him to exercise his own discretion in the matter of investments it is probable that he would have remained in an affluent position, instead of being compelled to seek shelter in the bankruptcy court. As we have said, he has never wantonly wasted money, being totally unlike the son of his uncle's partner. Mr. Vaughan, Jr., is chiefly remembered for having squandered £30,000 in fitting up a billiard room in his house. The panels of the walls were decorated by an eminent R. A., and the spittoons were of gold. The fate of the two men inheriting the wealth of the founders of the great Cleveland iron industry is a grim and dismal illustration of the mutability of fortune. In disposition, character and tastes they are as dissimilar as Hogarth's apprentices. Yet both in turn have come "under the weather."—*Midland Evening News.*

Joliet Sheets.

The Joliet Sheet Rolling Mill Company of Joliet, Ill, now have their buildings up and have begun to put their machinery into place. They expect to be rolling sheets by the first week in May. The product will be confined to light sheets, No. 25 and thinner, and of fine quality. Samuel Frewtrell is president and general manager. Mr. Frewtrell was connected with the Joliet Steel Works for 20 years as superintendent of their rail mill, but previously had experience in rolling sheets in England. He will make 20 tons a day at first, but the plant is so laid out that this production can be doubled by the addition of comparatively little machinery. The company are now ready to take contracts for future delivery, beginning in May. They have appointed C. E. Woodruff & Co., Northern Office Building, Lake and La Salle streets, Chicago, their exclusive sales agents, to whom all inquiries should be addressed as to prices, arrangements for deliveries, &c. The entrance of this company into the Western market is quite an event in the light sheet trade. Hitherto the Western jobbers and consumers of sheets have drawn their supplies from mills in Pennsylvania, Ohio and Indiana, but henceforth there will be local competition for such business. Other sheet mills are also in course of erection near Chicago, and this branch of trade is likely to become an important manufacturing interest in the near future in that locality. It has been a little late in getting a foothold, but promises vigorous growth from this time forward.

The Niles Shaping Machine.

The shaping machine, being almost universal in its application, is invaluable for a great variety of work, and its use affords an essential saving in the time and cost of doing certain kinds of work. To meet fully all that is expected of it, it must be so designed and the material so selected as to best provide for the great strains to which it is subjected, and at the same time accurate workmanship is necessary in order to produce the best results. The shaping machines made by the Niles Tool Works of Hamilton, Ohio, one of which is here illustrated, are all traveling-head machines—that is, the saddle carrying the cutter bar is traversed on a bed of considerable length, the cutting tool operating at all points. This type of machine is adapted to a much wider range of work than the pillar shaper with stationary head. The cutter bar is operated with the Whitworth quick return. It is so arranged that the forward or cutting stroke takes about two-thirds of the crank motion, while the return stroke is made during the remaining third. The regulation of the speed of the cutter bar is obtained by large cones for wide belts, so proportioned as to give the right speed for long or short cuts, or different material, and with ample power to do heavy work. On the long-stroke machines the driving cones are back geared, giving eight changes of speed. The feeds are cross, down, angular, and circular for convex and concave. The machine is provided with two tables, as shown. On one of them work may be clamped on the top or either side, while the other is arranged to receive a vise, index centers or a swiveling table. Both these tables have wide pendant elevating screws, which are so geared that they can be easily raised or lowered without stooping. A cone mandrel is also provided for planing such work as hubs of cranks or rocker arms. These machines are built in the following sizes: 16, 20 and 24 inch.



THE NILES 16-INCH SHAPING MACHINE.

Safety Devices for Boilers.

In view of the disastrous boiler explosions which have recently been alarmingly frequent, the Chicago branch of the National Association of Stationary Engineers have issued the following notice to steam users:

In the boilers which an engineer has placed under his charge there is a sufficient energy to equal that of a dynamite bomb, as far as explosive force is concerned. There are numerous safety appliances which, when rightly applied, hold this energy in check, and of which he must have a full and complete knowledge of the office they were intended to perform, or they are rendered utterly useless.

The first of the safety appliances to be considered is the safety valve. The form and construction of this indispensable adjunct to the steam boiler are of the highest importance, not only for the preservation of life and property, which would in the absence of this means be constantly jeopardized, but also to secure durability of the steam boiler itself. Increasing the pressure to a dangerous degree would be impossible in any boiler if the safety valve were what it is supposed to be—a perfect means for liberating all the steam which a boiler may produce with fires in full blast and all other means for the escape of steam closed. In order that it may work efficiently it is necessary that it should be properly proportioned in all its parts. The laws of this city [Chicago] require two kinds of safety valves, the ball and lever and spring pop valve, and there must be one of each upon every boiler. There are mathematical rules by which the ball and lever type can be adjusted and a thorough knowledge of them and all the principles involved are indispensable, and they require considerable care and attention to have the desired effect, for at best this kind of a valve is very imperfect in its action, as it will not seat until the steam pressure has fallen several pounds below the point at which it is set to open.

Where ignorance and carelessness hold sway, there are old grate bars, large monkey wrenches and slice bars hung on the end of the lever to prevent its working at the proper time. We say there is nothing mysterious in a boiler explosion, but in a case of this kind there is a deep mystery in connection, and that is—what prevents an explosion? In a spring-loaded valve (or pop valve) the valve is kept on its seat by the pressure of a spring. This spring, no matter in what position it may be placed, always permits steam to blow off at the pressure for which it is set.

There are many patents on different styles of this valve. A great advantage possessed by the spring loaded valve lies in the fact that the fireman cannot overweigh it, as in the case of the ball and lever type. And, again, they will close before the pressure has dropped a pound below the point at which they are set, thus avoiding a waste of steam. They must be set by the use of the steam gauge. Safety valves should be kept clean and should be frequently tested to see that they work freely and are correctly weighted.

An engineer should know how to figure the size of valve required for a given size boiler and all the rules pertaining thereto. Some firemen seem to think that unless steam blows off at the safety valve they are losing their reputation for skill, but it only indicates a very careless waste of steam, water and fuel, and, in effect, is just like stepping up to the office and removing money from the employer's pocket, and where an engineer in charge is worthy of the name such action would not be permitted.

It is absolutely necessary that every boiler should be provided with a trustworthy steam gauge for indicating the pressure at any and all times, and this gauge should be connected directly to the boiler, and not the steam pipe, in order to avoid fluctuations in its readings of the pressure. The kind most universally used at the present time is the dial gauge. It was invented by M. Bourdon, but the patent has lapsed, and many poorly constructed and unreliable articles have been since sold as Bourdon gauges. In all metallic spring gauges the connecting pipe should be fitted with a "syphon" just below the gauge, which serves to transmit the pressure and prevents the steam from coming in contact with the spring. Where there are several boilers in a battery, each boiler should be provided with a separate gauge, and an engineer must understand every mechanical detail of this indispensable adjunct to a steam boiler.

An Impending Crisis in Australia.

A grave financial crisis in Australia is predicted by some, which may prove more serious in its effects than the collapse in the Argentine Republic, because the English holdings in Australia involve much larger amounts of capital. Remarking on the subject a contemporary says:

While English holdings in Argentina were speculative, Australian securities have ranked with English and have been treated as sound investments. They have begun to fall and are certain to fall heavily. For one thing the drought last year swept off 12,000,000 sheep in Australia, one-tenth its flock, and worse is looked for this year. Every Australian colony is now passing through a terrible panic, banks and land mortgage companies are failing, Government railroads are losing money, and the colonial treasurers are forced at a time of great depression to increase taxation—doubling the rate for postage in Victoria, for instance—to meet the fall in revenues and railroad deficits.

It is always easier to see that a storm is coming than to predict its hour or extent. All the Australian colonies are now passing through a financial crisis which has filled their cities with starving workmen, checked their development and ruined a large number of land mortgage companies whose shares are held in England. At least two-thirds of the total Australian debt to England is, however, in colony bonds. These were borrowed at low rates, far lower than the loans raised in Argentina. The colonies can, at worst, readily raise the money to pay interest on their loans, and a default on Australian interest is not probable, though possible. But heavy losses on other forms of Australian debt held in England are certain. This is sure to lead to free sales in England of American securities. It will also, by checking Australian railroad building, deprive British iron and steel industries of their best customer and add to the universal world depression in price and consumption in the iron trade. It is, in fact, hard to see how for at least a year to come the situation in Australia can fail to produce a depression in England which will be felt here and which will continue the present reign of low price the world over.

WORLD'S FAIR NOTES.

Experience With a Cyclone.

On Tuesday of last week the World's Fair grounds were visited by a cyclone which did about $30,000 damage. The buildings which received the worst of the shock were the Illinois State Building and the pumping station. The storm burst in its fury at 10 minutes before 7 in the morning, and it was at this hour that the damage was done. Had the cyclone appeared an hour and a half later when the men were at work a large loss of life would have been inevitable.

This damage was chiefly confined to the Illinois State Building and will amount to $15,000 on that structure. The staging and the derrick surrounding it had been built up to a hight of 137 feet in the center of the building where the tower is located. This staging and the derrick were blown down entirely, removing about 65 feet of the upper portion of the tower. It is estimated by the contractor that between 37,000 and 40,000 feet of lumber were thus precipitated. Had not the building been properly planned and strongly built it would have lain in almost total ruins. One of the iron arches supporting the roof was sprung considerably, and had not its fastenings been secured it would have toppled over against a long row of others, completely demolishing the roof of the eastern end of the building.

The pumping station, which was built of brick, had reached a hight of 50 feet. The building was 70x70 feet, the walls being from 16 to 20 inches in thickness. When the cyclone struck it the walls were crushed like egg-shells and the entire structure fell to the ground, the only portion that was left standing being a small portion of the northern wall. It is estimated that about 70,000 feet of brick were thus overthrown. The loss on this will amount to about $12,000.

A staging 45 feet high on another building was wrenched from its fastenings and hurled a distance of about 15 feet. Posts and stagings were thrown down at Machinery Hall, creating a damage of $500.

The storm took away everything that was loose on the grounds and crushed many panes of glass in the skylights of the Mining Building.

The only explanation of the fact that more damage was not done seems to lie in the assumption that the storm was a regular cyclone, possessing all the freaks of that mysterious power. Had it been a common tornado other buildings in the path of the storm would have suffered, and in that case the damage would have amounted to several hundred thousand dollars.

The Congressional Investigation.

The Congressional Investigating Committee continued their labors until last Friday, when they returned to Washington. The investigation, instead of being the perfunctory and formal business that had been anticipated, was extremely searching and will probably be productive of good in an unexpected way. Expenditures made and others contemplated were rigorously inquired into, and reasons were demanded for almost everything done or to be done. Whenever there was a tendency to looseness or extravagance the fact was made so plain that the management was impressed with the necessity of adopting more stringent measures to control expenses hereafter.

An interesting financial showing was made by Director H. N. Higinbotham at one of the sessions of the Investigating Committee. From a financial slough of despond into which previous estimates had indicated that millions would be sunk without scarcely any appreciable return, Mr. Higinbotham raised the big enterprise by his estimates to a business basis of paying about 87 cents on a dollar. This is a great deal more than stockholders have been anticipating. Nearly a year ago a careful financier of the Board of Directors thought stockholders would be lucky if they secured 30 cents on the dollar. Mr. Higinbotham's estimate of all receipts is as follows:

Receipts from subscriptions and the city of Chicago up to March 1	$6,252,404.73
Due on subscriptions and from the city of Chicago	5,313,051.60
Estimated gate receipts	15,000,000.00
Salvage on building and sewerage	1,750,000.00
New subscriptions to capital stock	250,000.00
Concessions already granted	4,437,500.00
Estimated miscellaneous concessions	2,505,000.00
Total	$35,507,956.33

From this result it is easy to show how a return of 87 per cent. will be made on the entire capital stock of the exposition in case Congress shall become a subscriber to the amount requested. In the event of favorable action by the Government, the amount of World's Fair stock would be as follows:

From individual subscribers	$6,965,556.33
City of Chicago bonds	5,000,000.00
United States Government	5,000,000.00
Total	$16,965,556.33

The highest estimates made for the total amount of the cost of all departments of the World's Fair from beginning to end is, according to President Baker's report, $22,226,403.03. Deducting this from the estimated total of receipts, there remains $13,281,553.30 as the net proceeds to be distributed on the $16,965,556.33 of capital stock.

Mr. Higinbotham showed the committee that Congress, if it voted $5,000,000 for the World's Fair on conditions named in the pending bill, would get back $4,350,000 out of the amount. For Congress, it will be remembered, in this $5,000,000 appropriation, is asked to become a stockholder and stand on the same footing with the city of Chicago and the individual stockholders. Therefore, according to Mr. Higinbotham's figures, if 87 per cent. be paid back, the Government, so far as the Board of Directors is concerned, would be out of pocket but $650,000. The Congressional Committee was plainly pleased with what Mr. Higinbotham had to say. It was inclined to rely on his judgment, because outside of his business career he is the chairman of the Committee on Ways and Means of the World's Fair Directory. This committee has charge of all the money-making concessions which have been and will be granted. Mr. Higinbotham is also a member of the Finance Committee, which affords him an opportunity of familiarizing himself with all branches of expenditures.

Shortly before leaving Chicago for Washington Chairman Dockery of the Congressional Committee was interviewed by a reporter, and said:

"We are anxious to see this great fair a success. It will be a success. We shall do nothing to cripple the undertaking.

Our method of procedure will be this: After reaching Washington we shall adjourn the sub-committee for two or three days to enable the members to catch up with their correspondence. Then we shall resume the investigation in Washington in reference to the Federal Building. We shall rush things, as we have much other important legislation to attend to. The result of our labors here and in Washington will be put in printed form and submitted to the Appropriations Committee. This will be a statement of facts, and will embody no recommendations. Upon these findings of the sub-committee the Committee on Appropriations will bring the subject before Congress between April 20 and April 22, I should say.

"It is true that while as a sub-committee it would not be our province to recommend or disapprove, yet as members of the Committee on Appropriations, from our more intimate knowledge obtained while here, the action of that committee will be largely influenced. What that action will be, whether Congress will be asked to make an appropriation outright of the $5,000,000 requested, whether a loan will be advised, or an appropriation for the care of the commissions and the departments recommended, I cannot say. I do not know. The five members of the sub-committee have not consulted together upon what is best to be done. I do not know the opinion of one of my associates. It is true that on individual items, as they come up in committee, we have made comments as to whether they were insufficient or more than ample, but beyond that we have not gone. I do not know what the report will be. The estimates received vary. That is natural, as where so many estimates, much of which have to made without accurate data, are submitted by many individuals there must arise differences of opinion. We shall have to submit these to careful comparison, but this I will say, we have found actually nothing that smacks of fraud or corruption. The fair has been well managed. We were greatly pleased with the progress of the work when we visited the grounds As Americans we desire to see the exposition a great success. We shall certainly not do anything to injure it."

Officers for the Coming Year.

The stockholders of the World's Columbian Exposition Company elected their new board of directors last week and they in turn elected the following list of officers: W. T. Baker, president; H. N. Higinbotham, vice-president; T. B. Bryan, commissioner at large; A. F. Seeberger, treasurer; W. K. Ackerman, auditor; W. K. Carlisle, attorney; H. O. Edmonds, secretary. The following brief biographical sketches of these gentlemen will be found of interest:

William T. Baker is now 50 years of age, having been born September 11, 1841. He began commercial life at 14 years of age as a clerk in a country store at Groton, N. Y. He went to Chicago in 1861 and at once secured employment with Hinckley & Handy, commission merchants, as bookkeeper, and later succeeded Mr. Handy in the firm. In 1868 he formed a partnership with C. A. Knight and W. F. Cobb, which continued until 1872, when Mr. Knight retired. The firm continued as W. T. Baker & Co. and has for 20 years been known for its high standing on the Board of Trade. Mr. Baker served one term as president of the Board of Trade. One year ago he was elected president of the Board of Directors of the World's Columbian Exposition Company, and is now re-elected to serve until 1893.

Harlow N. Higinbotham was born at Joliet in 1838. He remained in Joliet working on a farm until 1858, when he secured a place in a bank at Morris, Ill. Early in 1861 he went to Chicago and secured employment in the wholesale dry goods house of Cooley, Farwell & Co. Marshall Field was in the employ of the same firm, and when in 1865 the firm of Field, Palmer & Leiter was formed, Mr. Higinbotham went there and has remained with the firm through all its changes.

Thomas B. Bryan was born in Virginia in 1828 and is known as a gentleman of the old Southern school, belonging to a type that is fast disappearing. He received his education in Harvard University, graduating from the law department in 1849. He practiced law in Cincinnati until 1852, when he went to Chicago. Mr. Bryan was one of the first in the World's Fair movement and drafted the series of resolutions that were adopted at the first meeting held in Chicago. He is now traveling through Europe in the interest of the fair.

A. F. Seeberger was born in Wetzler, Germany, in 1837, but came to America when an infant with his parents, who settled on a farm near Wooster, Ohio. He established in Chicago the once well-known hardware firm of Seeberger & Co. In 1885 he was appointed Collector of Customs for Chicago by President Cleveland and served until his successor was appointed by President Harrison.

W. K. Ackerman was for many years a prominent railroad man in Chicago. He occupied various positions with the Illinois Central, and finally became president. Afterward he represented the Baltimore and Ohio road in Chicago. He is said to be the most competent bookkeeper in the city, and his business ability is recognized by all who know him. He has been interested in the World's Fair work since its inception, and has done much to make the success of the undertaking possible.

W. K. Carlisle is the eldest son of Senator John G. Carlisle of Kentucky. He is about 40 years of age and is recognized as one of the most able attorneys in the West. In 1885 he went to Kansas, and two years later was made chairman of the Democratic Committee of the Seventh Congressional District, which two years ago sent Jerry Simpson to Congress. In 1888 he was offered a nomination for Congress on the Democratic ticket, but refused the honor. He went to Chicago last year to accept a position with Major Butterworth. He will in the future make his home in this city.

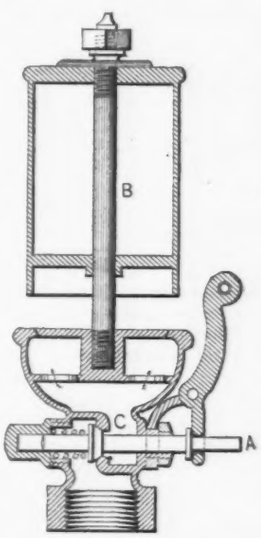
Howard O. Edmonds is a young man of about 28 years of age. He was born in Ohio, and eight years ago accepted a position as Major Butterworth's private secretary in Washington. He remained with the Major during the latter's term in Congress, and came with him to Chicago. He has practically served the Board of Directors as secretary for a year, and has made friends on every hand.

At the recent meeting of the American Bell Telephone Company the director's report shows that the number of instruments in the hands of licensees when rented December 20, 1891, was 512,407, an increase over the previous year of 28,617; exchanges, 788; increase, 14; total miles of wire, 266,456; increase, 26,044; total circuits, 186,462; increase, 12,797; total employees, 8376; increase, 531; total stations, 216,017; increase, 13,086. The estimated number of telephone connections daily in the United States made up from actual count in most of the exchanges is 1,584,712, or a total in the year exceeding 500,000,000. The total revenue reported by all companies was $1,638,653.29, and of this sum the extra territorial lines included $763,358.71, of which last sum $26,142.33 went to the company, an increase of $4881.16 over 1890. There are 71,506 miles of underground wires in use —one-quarter of all the mileage in the country—a gain of 15,683 over the previous year. The treasurer's report shows the following: Debtors — Telephones, $979,116.86; real estate, $933,130.66; stocks, $33,180,409.03; merchandise and machinery, $8884.96; bills and accounts receivable, $3,192,912.71; cash and deposits, $955,823; total, $38,950,277.22. Creditors—Capital stock, $15,000,000; debenture bonds, 1888, $2,000,000; bills and accounts payable, $848,908 60; patent account (profit and loss), $10,274,913.46; profit and loss, $5,688,566 78; reserve, $2,986,876.77; surplus, $2,151,011.61; total, $39,950,277.22.

The Frisbie Steam Whistle.

The illustration represents a single bell chime whistle made by Kingsley & Frisbie of Bridgeport, Conn. The bell is made of seamless drawn brass tubing fitted over a cast brass web divided into three compartments, thereby producing three different and distinct tones. As the tubing is of uniform thickness and absolutely smooth on the inside, a clear, resonant tone is produced. The bell is adjustable on the threaded rod B and it can be raised or lowered to conform to the steam pressure used.

It is well known that a whistle made to blow at a low pressure will become shrill



Section of Frisbie Steam Whistle.

and discordant under high pressure. By the movable bell, it can be set at a point to produce a clear full tone under any pressure, thus avoiding the disagreeable screeching not uncommon in many whistles.

The valve C has a patent reversible lever, and is also regrinding. By inserting a pin or wire in the hole in the valve stem, the stem can be rotated and the seat readily be ground.

Torpedoes, it is becoming well known, are regarded in naval and military circles, more than ever before, as a main reliance —both in coast defense and maritime warfare. Very soon the first active test will be made of the Whitehead torpedo, manufactured by E. W. Bliss & Co. of Brooklyn under a contract with the Federal Government. The new 18-inch torpedoes are to have a speed of from 32 to 33 knots for 437 yards, and 30 knots for 875 yards. The new pattern will carry a gun-cotton charge of about 250 pounds, with a detonator of 16 ounces of dry gun cotton, and a primer of from 35 to 40 grains of fulminate of mercury. A principal point is to determine practically the degree of force necessary to project the torpedo from an overwater discharge tube in such a manner as to make it strike the water at the most favorable angle.

Southern Commerce.

Although the low price of cotton has had an unfavorable effect upon the foreign trade of the Southern cities, says the New Orleans *Times-Democrat*, there is an encouraging increase in the aggregate of exports and imports. This would be very marked, indeed, had the great Southern staple kept anything like the price of the previous year; but, as it is, other business, particularly the shipment of grain, has made good the losses on cotton.

In the matter of imports there is a slight loss, due to a general decline in business. This, however, is not restricted to the South, but prevails throughout the whole country, and while the falling off of imports into Southern ports was only $1,279,068, the Northern ports lost $16,773,962.

It is in the matter of imports that New Orleans makes so favorable a showing. New York lost nearly $15,455,982, and so did nearly all the other ports, both North and South. New Orleans is one of the few cities which show an improvement, adding $2,290,050, or 24 per cent. This places New Orleans above Baltimore, and fifth among American cities in the matter of imports, being exceeded only by New York, Boston, Philadelphia and San Francisco. The total imports for the South during the past eight months have been as follows:

	1892.	1891.
Baltimore	$7,997,964	$11,549,253
Charleston	850,163	747,554
Corpus Christi	1,606,263	1,489,618
Galveston	775,403	380,552
Key West	514,921	1,043,418
New Orleans	11,942,179	9,552,129
Passo del Norte	4,575,572	3,644,755
Saluria	600,017	841,866
Savannah	149,923	123,968
Tampa	269,961	374,504
Wilmington	155,703	169,052
Other Southern ports	948,103	1,689,471
Totals	$30,386,172	$31,605,240

If Baltimore be omitted the table will show a material increase in Southern imports. The export table is still more favorable and is as follows:

	1892.	1891.
Baltimore	$66,901,197	$43,655,298
Brunswick	4,616,018	6,588,992
Charleston	15,197,007	17,650,422
Corpus Christi	2,968,937	2,485,911
Fernandina	524,318	309,108
Galveston	33,215,001	30,920,876
Key West	519,378	230,545
Mobile	2,199,960	3,076,657
New Orleans	97,253,464	80,033,286
Newport News	10,679,277	6,774,962
Norfolk	10,017,381	14,118,591
Pearl River	569,216	603,985
Pensacola	1,247,577	1,544,023
Richmond	4,894,030	7,862,856
Saluria	1,622,437	2,170,756
Savannah	22,352,192	28,616,081
Wilmington	4,805,196	8,155,085
Other Southern ports	477,636	809,505
Totals	$280,050,122	$257,111,639

This shows an increase of $23,938,483, or 9 per cent., over the corresponding period of last year. It will be noted here that nearly all the cotton ports in which the principal business is the exportation of cotton show a decline, as Brunswick, Charleston, Mobile, Norfolk and Savannah. The other ports doing a miscellaneous business like Baltimore and New Orleans make good this deficit. But taking all matters under consideration, and particularly the lower price of cotton, these tables show a favorable commercial condition prevailing in the South, while as for New Orleans, the figures are highly flattering, for despite the unfavorable conditions we have mentioned the total foreign commerce of the city has increased during eight months from $89,585,415 to $109,195,643, or 22 per cent.

The recent performance of engine No. 385, on the Jersey Central Division of the Reading Railroad, in making a mile in the remarkable time of 39¼ seconds, which means a speed of 91.7 miles an hour, has excited renewed interest among railroad men in the question whether a speed of 100 miles an hour is feasible on the railroads of the present day. Superintendent S. M. Vauclain of the Baldwin Locomotive Works, who designed the type of compound engine of which No. 385 is so good an example, says there is not the slightest doubt that it can pull a train of three cars 100 miles an hour, and that with four cars it can make 90 miles. With a good roadway he believes it can haul four cars 100 miles an hour. Recently the engine drew 13 loaded coaches from Jersey City to Philadelphia in the actual running time of two hours and eight minutes, and it has taken eight cars the same distance in an hour and 52 minutes.

An International Trust Combination.

A combination of all parties directly interested in certain trades or commodities to uphold prices is generally pronounced inimical to the public welfare and something to be condemned. But in the view of a great many intelligent persons silver may be treated as an exception, so that if a combination be formed on a sufficient scale of magnitude, as among the several leading commercial nations of the globe, for example, all agreeing to maintain silver on a parity with gold, the object will be accomplished. In the view of these dreamers, silver will become interchangeable with gold on a basis to be agreed upon, because of its actually enhanced value. The world, it is reasoned, will then become blessed with a complete and permanent system of bimetallic currency. Matthew Marshall, the well-known financial writer, indulges in a few remarks calculated to dispel this illusion. He says:

"Many advocates of free silver coinage assert that its enaction by this country alone would restore silver to its former relative value to gold, and all of them agree that it would be sure to do so if the other civilized nations would join with us in adopting it. Undoubtedly, if the whole commercial world should accept 15, 16, 20, or any other number of ounces of silver as the equivalent of 1 ounce of gold that would be sufficient to establish the ratio. All values are fixed by common consent, and the current prices of the market merely record that consent as ascertained by actual transactions. Legislation which accords with the facts in this respect may seem to have produced them, but really it only declares what has already taken place. When it attempts anything else it fails. No matter how many Congresses and Parliaments should enact, for example, that 16 ounces of silver should equal in value 1 ounce of gold, they could not make them equal. Creditors might be compelled to accept silver at this rate in payment of existing debts, but in future transactions they would stipulate for terms more agreeable to themselves. Government officers might receive silver for duties and taxes at its legal value, but when they came to pay it out they would have either to submit to the rule of the market, or repudiate their obligations to the extent of the difference. Even a unanimous agreement by the citizens of all countries to accept silver at a ratio above that fixed by the laws of trade would have only a temporary effect. Gold would cease to be mined, except under the most favorable conditions, and a scarcity of it would ensue which would finally break over the artificial barriers put around its price and make it more nearly commensurate with the cost of production.

"It is surprising that faith in the power of legislation to control the relative values of gold and silver should be so strong as it is, in the face of the repeated failures of attempts to regulate thus the values of other commodities." Incredible as it may seem, high authorities in Washington are confident of the efficacy of the plan above suggested to establish the relative value of gold and silver on a basis that shall not be disturbed.

The Rights of Workmen.

In disposing of the case of Emil Suvers, a member of the Cabinetmakers' Union in Philadelphia, 8th inst., charged with breach of the peace, Judge Finletter made some remarks anent the rights of workingmen. In November last the workmen belonging to the union and employed at Hale & Kilburn's furniture establishment, among them being Suvers, went out on strike, and it was claimed that the defendant lingered about the place and interfered with those who filled the vacant positions, by hooting at them and calling them "names."

Suvers denied that he had done anything to create a breach of the peace. He said he was appointed by the association to watch its members and inform them of the strike and that was why he hung about the place. He was paid $15 a week for so doing—the same as his salary when employed by the firm.

Judge Finletter, in deciding the matter, says:

I recognize the right of the workingman to try and better his condition. I recognize the right of strikers to abstain from working until they get the wages which they think are due them, but I also recognize the right of every other American citizen to work for just as much as he pleases and no association of workmen has a right to interfere with those who do not believe as their union does.

It seems to me that all unions are governed entirely by foreigners who bring to this country none of the spirit that should actuate the American citizen. They persist in maintaining all their individual rights and exclude the natural rights of every other citizen. The result has been that in all labor that requires skill the American citizen has been driven out and there are in this community large establishments, in which many workmen are employed, none of whom can speak English, and if this thing continues it will not be very long before there will not be an American citizen who understands skilled labor.

I cannot exactly understand why such a system of conduct is persisted in by these people. Every interference on the part of the defendant or any other member of the society with workmen which is likely to breed disturbance is a violation of the law. Therefore, it is an offense which can be punished and will be punished. These people must recognize the fact that every man has a right to work as much as he pleases and when and where and how he pleases. It appears from the evidence that this man has adopted the business of a spy and has been well paid for it, and it is a fact that all these men find it much more profitable for them to act as spies than to labor themselves.

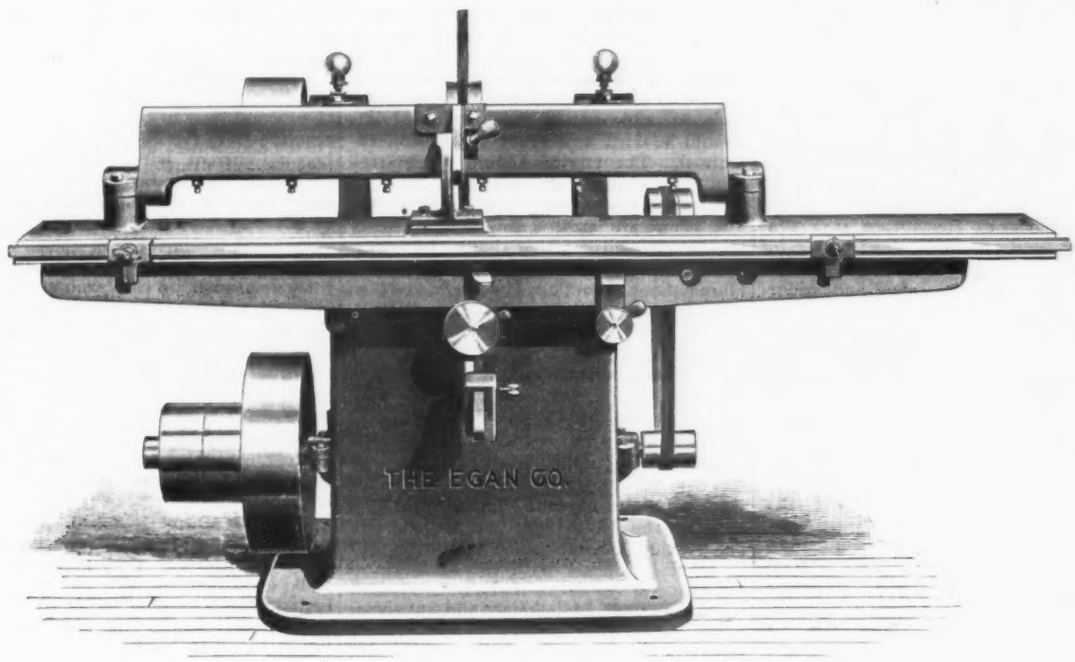
In this case I will put a stop to this man's interferences because I will hold him to such bail that if he violates the law again it will be made very expensive to his friends. I will require him to enter security in $1000 to be of good behavior for one year, and understand, being of good behavior means no interference with other people.

The test of cellulose which has recently taken place under the auspices of the naval authorities at Washington showed that 300 gallons of water came through a 6-inch shot hole in four hours, the rate of flow decreasing from 19 gallons in seven minutes at the beginning to 21 minutes for the 19 gallons. This was at the rate of one-third at the end of four hours that it was when the water was first applied. The decrease in the amount of water was due to the fact that as the water was absorbed by the cellulose, the cellulose expanded, the result being a decrease in the flow in the ratio of 3 to 1. It is not to be understood that the cellulose in any way takes the place of armor. It offers practically no resistance to the passage of the shot. What it does is to prevent the access of water to the interior of the vessel, so that, by a proper combination of coffer dams filled with cellulose and an internal protective deck of sufficient strength to prevent the

fragments of shell penetrating the engine and boiler spaces, it is possible to give light cruisers, whose displacement is insufficient to warrant a heavy armor protection, enough preservation of buoyancy and stability to enable them successfully to withstand very serious damage in the neighborhood of the water line.

The Egan Knife-Grinding Machine.

The Egan Company of Cincinnati, Ohio, have just introduced the knife-grinding machine for grinding knives for wood-planing machines which we here illustrate. The knife is held by a swinging clamp, which can be swung back from the grinding wheel, thereby making it very easy to change knives. When the knife has been clamped in position it is ground by the continuous motion of the carriage from side to side. The motion is reversed automatically, the knife is fed to the wheel the required amount after each movement and when the grinding has been finished the machine stops automatically. The machine therefore requires no attention. The frame of the machine is cast in one piece and the slides for the table are of sufficient length to support it firmly in the extreme position in either direction. During grinding the wheel is supplied with an abundance of water. Since the wheel grinds a slightly concave surface, the edge of the knife can be sharpened several times before it is necessary to regrind it. The machine will grind any length of knife up to 42 inches.



THE EGAN KNIFE-GRINDING MACHINE.

The antipathy toward Russian Jews, which is so pronounced in many directions, is based largely on prejudice. It is a pleasure to note that employers of labor who have tried the experiment of giving some of these unfortunates employment have been more than satisfied with the result. These Jews, who are reported to be averse to all forms of manual labor, have proved themselves industrious, painstaking, anxious to learn the duties expected of them, and faithful to the last degree. It is most unjust to these people, as it would be to any other class or nationality, to denounce them wholesale. They should be judged on their individual merits or demerits.

NEW PUBLICATIONS.

THE IRON FOUNDER By Simpson Bolland. Published by John Wiley & Sons, New York; price, $2.50.

Although bearing the more general title of "The Iron Founder;" Bolland's work is really what a subsidiary title indicates, a comprehensive treatise on the art of molding. It is written very largely for the more ambitious among the workmen and apprentices, the style throughout aiming to keep within the grasp of this clientage. The author seems to feel keenly on the point that the molders themselves must make an effort to study more closely their own art and learn to go beyond the mere rule of thumb method. Naturally, a large part of the work is elementary in its character so far as it deals with appliances and materials. Among the chapters which will be read with particular interest is one, well written, on the crystallization and shrinkage of cast iron. The principal divisions of the work embrace core making, loam molding and sand molding; the chief lines of work, like molding cylinders, kettles, condensers, pipes, elbows and branches, pulleys, columns and bevel wheels, are dealt with in detail. A very large number of plain but distinct drawings and sketches are scattered throughout the whole book, in which many will find valuable information who do not class themselves among those for whom the work is specially written.

A MANUAL OF MINING. By M. C. Ihlseng, Professor of the Colorado State School of Mines. John Wiley & Sons, publishers, New York; price, $4.

It is a somewhat surprising fact that we did not possess from the standpoint of American practice a single manual embracing the whole range of mining. Technical literature and notably the transactions of the American Institute of Mining Engineers possesses many monographs on certain branches of the subject. We have such elaborate works as that of Drinker, on "Tunneling," and of several authors on explosives, but we have nothing to compare with Lottner-Serlo in German or some of the earlier French works. Professor Ihlseng has not, we take it, attempted to rival these treatises, but he has written a work which will prove an excellent guide to students whose life is to be devoted to work in connection with American mining.

Professor Ihlseng divides his work into two parts—mining engineering and practital mining, including in the former a somewhat brief review of ore deposits, a chapter on preparatory and exploratory work, somewhat within the narrow field of operations in the Rocky Mountains; a chapter on the methods of mining, which does not, in our opinion, deal as fully as it might with the question of extracting ore from large bodies and difficult ground like the conditions encountered in some of our Lake Superior mines. Chapters are presented on the hoisting machinery of American mining, often too crude so far as counterbalancing dead load and rope are concerned. Mr. Ihlseng has succeeded in following up closely the latest applications of electricity for hoisting, and has treated well the subject of underground traffic and surface transportation. A chapter on pumping is more characteristically American than similar contributions have been thus far. The balance of the first part of the work deals chiefly with ventilation, illumination and hygienic conditions. The second part, embraced in the general title of "Practical Mining," treats in detail of the location, equipment and sinking of shafts in solid and in running ground, timbering, drifting and tunneling, boring, blasting, drilling and air compression, the book closing with a final chapter on mine examination. Altogether the work is an excellent start, which we trust may be followed in the future by more elaborate treatises.

POCKET COMPANION OF USEFUL INFORMATION AND TABLES Appertaining to the Use of Wrought Iron and Steel made by Carnegie, Phipps & Co., Limited, Pittsburgh. Edited by C. L. Strobel and F. H. Kindl. Pocket form; price, $2.

The first portion of this book contains information as to the various sizes and shapes of beams, angles, channels, Z bars, tees, rails, plates, &c., made by the above company. After this comes the general information compiled especially for the use of engineers, architects and builders, the intention of the editors being manifestly to convey in a practical way all the

information necessary for the handling of any of the various shapes made. It will thus be seen that the book has a wide scope and deals with matter of almost universal interest in every branch of engineering. To put the matter briefly, we may say that having a certain load to carry on a beam or column placed in a certain position, all necessary information is here given in order to ascertain the best shape for doing the work, the size that will insure ample strength without any surplus material, and, when necessary, the best methods of uniting several parts in order to form a composite member. Although the book is especially devoted to the product of Carnegie, Phipps & Co., this product is so extended as to cover almost every conceivable shape made in this country, and the book therefore loses any individual character it might be thought to have as pertaining only to one line product manufactured by a single concern.

WAYS AND MEANS. For machinists, metal workers, model makers, watch and tool makers, jewelers, draftsmen, &c. By A. H. Cleaves, M.E. 158 pages. Size, 5 x 7 inches. Published by John W. Weston, Chicago. Price, $1.

The book before us is one of those handy little volumes of especial interest to machinists and other mechanics. It is a collection of hints and helps not usually found in books written for this class of artisans, and from material gathered from the long experience of the author. In the preface to the work the author says that in collating and preparing the matter for it his attention has been drawn to the fact that there are other materials and appurtenances connected with mechanics' practical work that have not been exhaustively treated. It is therefore intended that "Ways and Means" will be the opening book of a series of handy volumes which will possibly include Mechanical Movements Applied, Gauges, Scales, Measuring Instruments, Punches, Dies and Die Sinking, Mold Making, &c. It has been the special aim of the writer of the present work to present the matter in a very plain fashion, so that any mechanic would thoroughly understand it. The book is serviceably gotten up and very profusely illustrated with diagrams and sketches which explain the matter thoroughly. It begins with an account of hardening and tempering small work, including a description of a furnace for hardening and annealing. Then comes an account of various mechanical appliances and methods. A chapter is devoted to the bench lathe, and also one to chucks of different kinds, while a third chapter is given up to slide rests and bench lathe tools. The work closes with an account of various appliances and methods, formula for gearing lathes, &c. At the close are a number of valuable tables. In addition to the general table of contents, there is also an alphabetical index.

HOW TO RUN ENGINES AND BOILERS. By E. P. Watson, Editor of *The Engineer*. Published by the author. Illustrated, 125 pages; price, $1.50.

The writer cautions the engineer who is placed in charge of a plant to first thoroughly examine the boiler, to go inside himself and ascertain the exact condition of things. To remove scale, it is recommended to run the boiler full of water up to the third gauge and then put in a quantity of a scale preventive. Caustic potash answers a very good purpose when the scale is chiefly mud with sulphate of soda and magnesia combined. After the purger is in the boiler build a light fire and heat the water to boiling point and then haul the fire and let the contents stand. This is best done Saturday night, the boiler being left standing until Monday morning, when a pressure of 5 or 10 pounds of steam is got up, the fire drawn and the boiler blown down. The use of crude oil, or any other kind of grease, in a steam boiler is condemned, as it generally gets in fast enough through the feed water. The mud drum should be outside of the boiler, in plain sight, where it can be got at and cleaned weekly. The questions of boiler fittings, grate bars and tubes and bridge walls are considered in detail. Much space is devoted to the side valve throttling engine, as it is the commonest form of steam engine in use to-day. Directions are given concerning the proper care and repair of the piston and slide valve and methods of testing the valve with relation to the parts. The defects of the slide valve are pointed out. One great cause of the untrue wearing of the slide valve is the manner in which the stem is connected with the valve itself. In the locomotive the yoke is used exclusively. The eccentrics, crank pins, bearing and valve gears are described, and the best way of caring for them detailed. Then follow condensing engines and the various fittings and attachments.

In starting a new plant the boiler should be heated very slowly, and should be full of water—three full gauges—so that while the pressure is still low it can be blown to get rid of all rubbish that has accumulated in inaccessible corners. All movable joints should be tried and every connection examined. The engine should be started under very moderate pressure, and all parts closely watched. The author points out where difficulties are likely to arise, and the precautions that should be taken. The book closes with some sensible remarks about the qualities demanded of an engineer.

COSTA RICA.—Bulletin No. 31. Published by the Bureau of American Republics, Washington.

Another hand-book has been added to the admirable series which the Bureau of American Republics has been issuing through the efforts of W. E. Curtis, the director of the bureau. Those who have perused the hand-books on Brazil, and on Mexico possess some conception of its scope. It deals with the agricultural and mineral resources of the country, and takes up the commercial and financial characteristics of the country. It may be termed a business guide-book, written and illustrated in a very attractive manner.

PRACTICAL CARRIAGE BUILDING. By M. T. Richardson. Published by the M. T. Richardson Company, New York; illustrated; vol. 1; 222 pages; price, $1.

This book was written with a view to furnishing, in a condensed form, practical information upon all minor matters pertaining to carriage making. It is written in an extremely simple and practical way, and is particularly free from abstruse arguments and suggestions that are not of service. The first chapter considers the all important question of timber, the qualities of the various kinds of wood, and describes the best methods of seasoning, storing, and finally working to the desired form and inserting in place. This naturally brings under discussion the shop and its arrangement, and the many tools and devices necessary. Everything appertaining to wheels, from the laying of the foundation, so to speak, to the last stroke of work, is dealt with in the next division. Then follow discussions upon all the minor parts of the vehicle, the book appropriately closing with directions for "making a wagon run well." The book is full of hints which are sure to be of benefit to carriage builders.

Plans are being perfected for a huge dry dock, 600 feet in length, for the Brooklyn Navy Yard. The dock will cost about $1,600,000.

The Uses of Aluminum.—I.

In a recent issue of *The Iron Age* we reproduced that part of a lecture delivered by Capt A. E. Hunt of Pittsburgh before the Franklin Institute, which dealt with the cost of aluminum. We quote below from the same admirable paper on the use of the metal:

In my judgment, the aluminum problems of by far the greatest moment yet remaining to be solved are in connection with the development of the uses of aluminum in the arts. Much has already been done in this matter, the demand for the metal increased tenfold over any previous year in 1891, yet very much more remains to be done. Within the past ten years there have been two popular widely-spread ways of solving this portion of the aluminum problem, which are superficial, erroneous and a hindrance to the true solution of the problem; the first assuming properties for the metal that it did not possess, proclaimed that aluminum would, as soon as it could be produced in sufficient quantities, replace all the other metals in the arts not only for the special purposes where the higher grade metals are now used, but also for structural and building purposes to replace iron and steel; the second view of the subject (the natural reaction from the first erroneous one has become current within the past year or two, as the people began to use aluminum and found their ideals regarding it shattered) is to the effect that the metal has little or no use in the arts.

The reasoning for the first popular erroneous answer to the problems involved in the development of uses of aluminum in the arts was that aluminum was by far the most abundant of all the metals in its distribution in the earth's crust, and consequently should be the cheapest. Confusing the comparison of strength of materials, section for section, with equivalent weights, forgetting to take into account its low elastic limit and modulus of elasticity, or modulus of resilience, or its lack of rigidity under compression strains or its natural softness, but noting that the metal withstood the ordinary atmospheric and other usual conditions of corrosion with considerable efficiency over other metals commonly used in the arts, the enthusiastic conclusion was reached that we were rapidly leaving the "steel age" as we had the "iron age" before it, and were advancing upon the "aluminum age," "where this wonderful metal should supersede all others for almost all the uses of mankind." It is surprising that some of the hopeful ones did not propose to mold up the clay banks into buildings and railroads and other useful contrivances, and turn on the electric current and produce the aluminum structures *in situ*.

As instances of the second view of the case that I am sorry to say has become quite fashionable of late, as shown by the frequent publications in trade journals, a writer in a recent German publication disappointed in his ideals regarding the solubility of the metals in acid, and finding that aluminum could not be used as a substitute for platinum in acid stills, immediately jumps to the conclusion (and publishes his conclusions broadcast) that the metal is entirely unsuitable for culinary utensils, seemingly forgetting that cooking operations are not conducted in muriatic, nitric, or even in sulphuric acids, as dressings or gravies, and not considering it necessary to investigate the action of these acids or their salts upon the metal in quantities and under conditions similar to those the metal would in any likelihood be subjected to in actual use in culinary utensils.

Another writer has gone through a long list of experiments, heading his table of results "Solubility of Aluminum in Acids," using aluminum foil and finding that

in from two to four days the foil was dissolved in from 1 to 10 per cent. solutions in water of many organic acids, such as formic, acetic, butyric, lactic, tartaric, citric, oxalic, palmitic, stearic, gallic, salicylic, carbolic, boric, &c.; he wisely proclaims that these results show that this metal is unfit for canning materials, cooking utensils or any chemical laboratory purposes. The writer forgets to investigate the differences between foil and thicker plates before drawing his conclusions, nor did he inquire as to the action of these same reagents upon equally thin foil sheets of other metals now used for the operations he describes. Had he done so, he would have found that in the sections used in utensils of other metals, aluminum withstands the action of all the reagents mentioned as well as do the metals now in common use; and for the action of ordinary solutions on thin foil, tin, iron and copper are fully as rapidly acted upon as is aluminum. Aluminum has neither taste nor odor, nor are its salts (in small quantity) especially poisonous, as are the salts of other metals now more commonly used.

Aluminum is not much more acted upon than is tin, copper or silver by salt water, and even by such solutions in vinegar as the metal is liable to be subjected to in ordinary culinary vessels. The salts of tin or copper thus dissolved are very poisonous; but not only are the aluminum salts that are formed less in amount, but the acetate of aluminum formed resolves itself on boiling into either an insoluble sub acetate or into pure alumina, neither salt having either taste or injurious toxic action. For these reasons, quite surely aluminum will have a large future for cooking utensils.

Aluminum cooking utensils have been used in my own home for the past two years, almost altogether, being subjected to all of the usual materials that varied household uses subject them to, including plenty of good soap and water and scrubbing; and none of the vessels are in the less corroded. Aluminum spoons have been subjected to treatment with vinegar in comparison with silver spoons, and have withstood the ordeal equally as well, and are in constant use in my own home.

Impurities of Aluminum.

The principal impurity of the commercially pure aluminum of to-day is silicon, which exists in two forms, one seemingly combined with the aluminum, as combined carbon exists in white pig iron, and the other in an allotropic graphitoidal modification. These two forms of silicon seem to exert somewhat different effects by their presence in the aluminum; the combined form of the element rendering the metal much harder than the graphitoidal variety. The combined silicon ordinarily preponderates, being 55 per cent. to 80 per cent. of the total silicon in the metal of 99 per cent. purity made by the Pittsburgh Reduction Company. The graphitoidal silicon is separated on dissolving aluminum in hydrochloric acid as a black insoluble residue, and appears like graphitoidal carbon on similarly treating gray cast iron. In fact, it has been mistaken for carbon by many superficial or ignorant observers. Carbon does not unite with aluminum except at very high temperatures, and its influence seems to be to make the metal very brittle. Metal containing carbon can readily be told by its abnormal crystalline and peculiar colored fracture.

In the electrolytically made commercially pure aluminum of to day, the only other impurity is iron, which, if it exists in larger quantity than 5 or at most 10-$\frac{1}{100}$ of 1 per cent., is the result of carelessness in manufacture, or the selection of needlessly impure alumina ore or carbon anodes. The presence sometimes found of copper or lead in any quantity in the metal is the result of needless contamination with these elements in the preparation of the ore or the carbon anodes, or in the manipulation of the pots. By allowing the pots to run for a considerable time without ore, and with a high current and very hot electrolyte, as sometimes occurs in careless working of the pots, metallic sodium has been alloyed with aluminum in noticeable percentages. Upon placing such metal in hot water, the sodium will be rapidly dissolved out with considerable effervescence, and the pure metal left spongy, honey-combed and weak.

For many purposes the purest aluminum cannot be so advantageously used as that containing 3 per cent. or even 4 per cent. of impurity, as the pure metal is very soft, and not so strong as the less pure. It is only where extreme malleability, ductility, sonorousness or non-corrodibility is required that the purest metal should be chosen. For most purposes a small percentage of other elements than silicon and iron are advantageously added in producing hardness, rigidity and strength. Titanium, chromium and copper can readily and cheaply be added, and are constituents that will not detract from the non-corrobibilty of the metal as much as do these natural impurities that come from the ore and apparatus — additions that will give the aluminum a better color and greater strength and hardness, with proportionately less sacrifice of malleability, ductility, &c.

The properties of aluminum which will probably give it the greatest availability in the arts are:

1. Its relative lightness.
2. Its non-tarnishing quality as compared with many other metals; aluminum not being acted upon by sulphur fumes at all, and being very much more slowly oxidized by moist atmospheres than most of the metals.
3. Its extreme malleability.
4. Its easy casting qualities.
5. The influence of the metal in various alloys will give it advantages, some of which I will try to enumerate and call to your attention.
6. Its high tensile strength and elasticity when weight for weight of the metal is compared with other metals, and especially when alloyed with a small percentage of titanium, silver or copper and properly worked by being rolled or hammered or otherwise drawn down.
7. Its high specific heat and electrical and heat conductivity.

Not a Strong Metal.

Unfortunately, aluminum is not, section for section, as has been widely claimed, comparatively a very strong metal. It is only about as strong under tensile strain, section for section, as cast iron, and has less than one-half the strength of wrought iron under ordinary conditions. Under compression, the metal, unfortunately, has a very low elastic limit, although its extreme ductility allows the metal to flow on itself so freely as to make it for special purposes a very safe metal to use in compression.

The same remark applies to transverse tests on aluminum. It is not a rigid metal at all, and bends under transverse strains very readily. I append a table of results which, from our experience, I believe will show about the average tensile and compressive tests of commercially pure aluminum, unannealed:

	Pounds.
Elastic limit per square inch in tension, castings	5,000
Elastic limit per square inch in tension, sheet	12,000
Elastic limit per square inch in tension, wire	16,000 to 30,000
Elastic limit per square inch in tension, bars	10,000
Ultimate strength per square inch in tension, castings	15,000
Ultimate strength per square inch in tension, sheet	24,000
Ultimate strength per square inch in tension, wire	30,000 to 65,000
Ultimate strength per square inch in tension, bars	28,000
	Per cent.
Percentage of reduction of area in tension, castings	10
Percentage of reduction of area in tension, sheets	25
Percentage of reduction of area in tension, wire	40
Percentage of reduction of area in tension, bars	20
	Pounds.
Elastic limit per square inch under compression in cylinders, with length twice the diameter.	3,500
Ultimate strength per square inch under compression in cylinders, with length twice the diameter.	12,000
The modulus of elasticity of cast aluminum is about	110,000,000
The modulus of elasticity of forged aluminum is about	15,000,000
The modulus of resilience of cast aluminum is about	0.1600
The modulus of resilience of forged aluminum is about	0.2200

Under torsional stress in Thurston's torsional machine the metal has much lower modulus of rigidity than iron or steel, its maximum shearing stress in castings being about 12,000, and in forgings about 16,000, being about that of pure copper. The angle of torsion is about equal to that of the softest steel.

The tensile strength of aluminum wire runs up very considerably over that of the rolled metal. This is due to the peculiar property of aluminum to harden under work. The metal requires frequent annealing in rolling; and if it be drawn into wire with as little annealing as possible, the tensile strength is increased very considerably. This property of the metal is increased especially if the aluminum is alloyed with a small percentage of copper, titanium or silver.

It is perfectly feasible to produce a wire of aluminum alloyed with a small percentage of silver, titanium or copper which will have a tensile strength of 80,000 pounds to the square inch, and which will have, weight for weight with copper wire, an electrical conductivity of 170 to that of copper being 100. When it is taken into consideration that the copper will only have a tensile strength at maximum of say 30,000 pounds per square inch, against the 80,000 pounds strength of the aluminum-titanium alloy, and when the further fact that iron or soft steel wire has only a conductivity of 17 in the same scale, and has a less or at most only an equal tensile strength per square inch with the aluminum-titanium alloy, a wide field for usefulness for electrical conductors seems opened for the metal, even at present, when the price of the wire of aluminum-titanium alloy will necessarily be considerably higher; but when such an alloy can be produced in fine wire at a price of, say, 15 times that of iron wire, pound for pound, then as the section can be reduced the aluminum-titanium alloy will be the cheapest as well as the most advantageous for electrical conductors.

Two things, however, should always be borne in mind in considering the applicability of aluminium for given purposes in the arts. The first is that the properties of the metal are very considerably changed as regards strength, tenacity, hardness, rigidity and color by alloying it with small percentages of other metals, conditions that do not materially change the specific gravity of the metal. The second is the relative weight of aluminum; taking the tensile strength of aluminum in relation to its weight, it is in plates as strong as steel at 80,000 pounds per square inch ultimate strength, and in cold drawn wire as strong as steel at 180,000 pounds ultimate.

Specific Gravity.

The specific gravity of aluminum, of course, is one of its most striking properties; it varies from 2.56 to 2.70. The weight of the given bulk of aluminum being taken as one, wrought iron is 2.90

times as heavy; structural steel is 2.95 times; copper, 3.60 times; ordinary high brass, 3.45 times; nickel, 3.50 times; silver, four times; lead, 4.80 times; gold, 7.70 times, and platinum, 8.60 times as heavy. Most woods that would be used for structural purposes are about one-third as heavy as aluminum.

The specific gravity of aluminum is 2.56 in ingots and 2.64 in forged bars.

A cubic inch of cast aluminum weighs 0.092 pound; of rolled sheet metal, 0.098 pound.

	Weight in pounds of 1 cubic foot.	Tensile strength per square inch.	Length of bar in feet able to support its own weight.
Cast iron	444	16,000	535
Ordinary gun bronze	525	36,000	9,893
Wrought-iron plates	480	50,000	15,000
Aluminum plates.	165	26,000	23,000
Aluminum plates, cold rolled	168	35,000	39,615
Aluminum plates, cast	160	15,000	13,231
Aluminum plates, forged	165	20,000	17,700

Wherever momentum is to be overcome, as in the reciprocal parts of many forms of machinery, aluminum can be advantageously used.

For valves, for structural purposes, and for machinery where lightness is a prime factor and where the wear due to the softness of the metal in bearings can be avoided by bushing, and its pliability can be overcome by properly designed sections and by using metal hardened by alloying and by cold rolling, drop forging, or otherwise stiffening it up, the metal can be used advantageously and deserves further consideration.

Resistance of Oxidation.

Aluminum does not oxidize seriously so as to interfere at all with the strength of thin sections of the metal, as does iron or steel; the thin film of oxide which covers the surface of the metal which has been long exposed to moist atmosphere seems to prevent its being further acted upon. But it does give a surface tarnish to the metal which cannot be rubbed off with the usual metal polishing compounds without interfering with the surface of the soft metal. This, however, can be removed by rubbing with a flannel rag which has been immersed in a 2 per cent. solution of hydrofluoric acid and then again rubbing up the polish with a rag saturated with carbon oil. Special aluminum polishes have been devised which work very efficiently. When properly cared for, polished surfaces can thus be kept bright for a remarkably long time.

As compared with most metals, pure aluminum, under ordinary circumstances, withstands the action of wind and weather exceedingly well; and many uses to which the metal is now being successfully applied are based upon this fact. The presence of silicon in aluminum materially detracts from its power to withstand corrosion due to atmospheric influences. Metal with 4 per cent. or 5 per cent. of silicon very soon collects a thick coating of oxide upon it, severely exposed. The fact that pure aluminum is not severely acted upon by boiling water or by steam has led to its successful use as a packing or gasket in steam connections, where lead and similar metals have been rapidly cut out, as in parts of steam and water pumps and difficult steam joints.

Aluminum is not acted upon by carbonic acid or carbonic oxide, or sulphureted hydrogen, at any temperature less than 600° F., and these facts will undoubtedly lead to its application for many new purposes in the future.

Aluminum is found to withstand the action of organic secretions better even than silver, and for many forms of surgical instruments and apparatus such as suture wires and tracheometer tubes, the metal is already receiving very wide use. Many surgeons are having their instrument cases made of aluminum; it having the advantage that they can safely be washed clean with antiseptic solutions. It may be well, however, to say here that perspiration in handling polished aluminum does tarnish the metal, and that aluminum, like other metals, cannot retain a high polish with frequent handling. The natural acid solvent for aluminum in hydrochloric acid. Solutions of the strong caustic alkalies, chlorine, bromine, iodine, and fluorine, rapidly corrode aluminum. Ammonia gas has very little action on the metal, except to turn it a gray color. Strong aqua ammonia has a slight solvent action upon it.

Two plates of about 6 inches square each, one of aluminum and one of copper, were nailed upon the wooden sides of a schooner that has made a trip from New York to the West Indies and back, and were immersed in the sea water together for four months. The sheets weighed 1 pound 2¼ ounces avoirdupois for the copper sheet and 5⅛ ounces for the aluminum sheet; neither sheet lost an appreciable amount by the service. The original thickness of the sheets was 0.087 inch each, and now is 0.087 inch and 0.086 inch for the aluminum and copper, respectively, showing that the copper sheet corroded the most under equal treatment. Unfortunately for the advantageous use of aluminum as a sheathing for ships, however, the barnacles seem to thrive on the aluminum sheet, a satisfactory evidence of the relative non-corrodibility of the metal, but not of its availability for certain marine purposes.

For structural purposes under water, where metals are required, aluminum seems to be especially adapted to replace the more easily corroded cast and wrought iron and steel now in general use for such purposes. For liners and shims upon masonry foundations aluminum is well adapted, as it flows sufficiently to allow equal bearings on all parts, and is less easily cut out then lead, and much more durable than tinned iron sheets, which are now in general use under heavy structures of metal resting on metal shims on masonry.

Aluminum sheets will make a much more durable and satisfactory roofing than sheet copper, now generally used in valuable buildings.

Under heat the coefficient of linear expansion of ⅝ inch round aluminum rods of 98½ per cent. purity gave results as follows:

0.00002295
0.00002289
0.0000206
0.0000230 } per degree Centigrade,

between the freezing and boiling points of water; that of iron being 0.0000122, tin 0.0000217, copper 0.00001718.

The coefficient being obtained in the usual way by dividing the difference in length of the test bars at two given different temperatures by the product of the original length of the bars times the difference in temperatures.

The specific heat of aluminum, according to the experiments of Prof. J. W. Richards, is 0.02143, water being taken as one.

The coefficient of thermal conductivity of aluminum, obtained by the method of Wiederman and Franz, silver being taken as 100 and copper as 73.6, is 37.96 (unannealed aluminum); annealed aluminum, 38.87.

The election of officers by the New York Metal Exchange resulted as follows: President, John J. Williams; vice-president, William I. Russell; treasurer, Carl Mayer; members of the Board of Managers, W. H. Davol, Edmund Hendricks, George Nissen, Nicholas L. Cort, Morton B. Smith, J. C. Burton, Joseph Byrne, Lucius Hart, Julius H. Lobdell, Wm. H. Wells, Edward A. Caswell, Chas. S. Trench, B. Hochschild, Robert Gentle; Arbitration Committee, J. M. Clark, H. M. Cort, Geo. W. Jaques, S. A. Jennings, Fred. Steiner; Inspectors of Election, Wm. Hagan, Geo. N. Frecker, J. Z. Demarest.

The Serve Boiler Tube.

In order to determine the most suitable conditions for using the Serve ribbed tubes in boilers, Messrs. John Brown & Co. of Sheffield have fitted up a complete testing plant, by means of which comparative figures can be obtained for the Serve tube and for the plain tube, under a wide range of working conditions. Thus experiments have been made with natural draft, with forced draft, and with induced draft, both when the air is supplied to the furnace cold and when it is previously heated, and much information of a valuable character has been gained. It has been found that for each variety of coal a certain degree of draft is required if Serve tubes are to be successfully used. Thus when very smoky coal is used with low natural draft, the tubes choke up, and hence in future Messrs. Brown will not offer to supply tubes for such conditions of working. Such unfavorable conditions occur with small steamships having low funnels; but with high funnels, or with forced draft, no trouble is experienced even when smoky coal is burnt. When the draft is such that 30 pounds of coal are burnt per square foot of grate area, the tubes can be relied upon to keep clean. As the result of their experiments Messrs. Brown recommend that with natural draft the hight of a steamship's funnel should, if Serve tubes are used in the boiler, be 65 feet above the grate for Welsh coal, and 75 feet if smoky coal is used. Under such conditions the firm are prepared to guarantee with the Serve tubes a minimum saving of 10 per cent. when cold air is supplied to the furnaces, and somewhat less when the air is previously heated. Messrs. Brown have also experimented with Howden's system of forced draft, and this inventor's spiral retarder has been fitted to the Serve tubes with great success, being fully as applicable to them as to plain tubes, and with the combination of Howden's retarders and Serve tubes Messrs. Brown claim an advantage of at least 12½ per cent. over plain tubes similarly fitted, or of 20 per cent. over plain tubes alone. These results they state as the outcome of a long series of experiments, and they claim that they are borne out in practice. It would be of much interest if Messrs. Brown would publish full details of the results of their experiments.

The Queen and Crescent Route has just issued eastbound pig iron tariff No. 1 covering points east of Pittsburgh. All other important points were covered in the table printed in our last issue. The new rate went into effect April 6, and is for carload lots, tons of 2268 pounds:

To Baltimore, rail and water	$3.90*	$3.86+
To Baltimore, all rail	4.15*	4.11+
To Boston, rail and water	4.40*	4.36+
To Boston, all rail	5.80*	6.09+
To Jersey City, rail and water	4.05*	4.01+
To Jersey City, all rail	4.65*	4.61+
To New York, rail and water	4.05*	4.01+
To New York, all rail	4.65*	4.61+
To Philadelphia, rail and water	4.05*	4.01
To Philadelphia, all rail	4.35*	4.31+

* From Dayton, Tenn., and Rockwood, Tenn.
+ From Rising Fawn, Ga.; Fort Payne, Ala.; Attalla, Ala; Trussville, Ala.; Birmingham, Ala; Wheeling, Ala.; East Birmingham, Ala.; North Birmingham, Ala.; Thomas, Ala.; Ensley, Ala.; Woodward, Ala.; Gadsden, Ala., via Attalla.

There are 11 companies in the rubber combination, representing but $9,000,000 out of the $22,000,000 invested in the rubber business in the United States. Those not in are shoe companies.

THE WEEK.

The Spanish Columbian Exposition, to be held in Madrid next September, will possess many features of special interest, relating to the early history of the United States.

Springer's free wool bill passed the House 7th inst., 182 against 60, a strict party vote. At the present time the farmers of this country own 45 000,000 head of sheep, valued at more than $117,500,000, from which sheep they will take this year not less than 300,000,000 pounds of wool, which, at a low valuation, will yield them an income of $75,000,000. This is the extent and value of the American wool industry.

A bill before Congress appropriates $3,500,000 for a new Patent Office.

American Federation of Labor statistics give the membership of some of the affiliated unions as follows: Carpenters' Brotherhood, 65,000; Amalgamated Association of Iron and Steel Workers, 60,000; Iron Molders' Union of North America, 41,000; International Bricklayers' and Stonemasons' Union, 35,000; Brotherhood of Locomotive Engineers, 30,000; International Typographical Union, 28,000; Cigar Makers' International Union, 27,000; Brotherhood of Locomotive Firemen, 23,000; United Mine Workers, 20,000; Granite Cutters' National Union, 20,000; Journeymen Bakers' National Union, 17,500; Journeymen Tailors' Union, 17,000, and the Brotherhood of Railroad Trainmen and Brotherhood of Painters and Decorators, each 16,000.

Nine ferry boats and the bulkhead at the foot of Thirty-fourth street in this city have been transferred to the Long Island Railroad Company, who are extending their service.

Pork packing in two Western cities last year shows a large falling off compared with the seasons of 1890–91, which was exceptionally active. The aggregate number of hogs packed in 1891–92 was 14,457,614. St. Louis alone shows an increase for the year ending March 1, 1892.

The Cromwell Line of steamers to New Orleans has been purchased by Secretary Searles of the Sugar Refiners' Company, who receive a considerable share of their raw material from that direction. The line was not successful in some of its Eastern ventures.

J. Pierpont Morgan has given $500,000 to the New York Trade Schools. The schools last week graduated 521 pupils, who had all thoroughly learned some trade. The trades chiefly taught are plumbing, bricklaying, painting, plastering, carpentry, tailoring and stonecutting.

In a trial before Judge Shipman in this city, Dun, Wiman & Co.'s Commercial Agency was held liable for a false report sent out to a subscriber. The City National Bank of Birmingham, Ala., influenced by favorable representations concerning a lumber merchant of Oswego, N. Y., accepted a draft for $5,393.26, and a verdict for the full amount claimed was rendered by the jury, regardless of the claim of the defendants that owing to a contract between the agency and its subscribers they were absolved from responsibility.

The opening of navigation on the lakes is expected to open a number of interesting problems to the Western railroads in adjusting freight rates for the season. One of the points to be settled is the rate to be applied between Chicago and the Missouri River on business from the Atlantic seaboard to trans Mississippi points. Last season the Chicago lines attempted to maintain their regular proportion of the all-rail rate, but the attempt failed. Business drifted into other channels, and before the end of the season rates were made to suit the various roads.

New York strikers have gained a victory over the Pelham hod-hoisting engines, which have been thrown out from numerous buildings in course of erection. The difficulty is not so much a war against the use of machinery, as opposition to the employment of non-union engineers by the company controlling the elevating hod.

The Chinese Minister at Washington is said to have intimated that if the Extreme Chinese Exclusion bill became a law in the form that it passed the House, the Chinese Government would sever all diplomatic relations with this country.

A bill appropriating $400,000 for a bridge over the Harlem River ship canal at King's Bridge has become a law. A bridge is necessary to prevent the most important thoroughfare in that section being cut in two.

There is talk of an opposition sugar refinery, the outcome of the union of 100 wholesale grocers, who are to subscribe $1,000,000 and will locate a refinery on Staten Island with tidewater facilities. The grocers claim that the rebate of ⅛ cent allowed by the trust does not pay transportation and charges.

President McLeod of the Reading Railroad contends that the lease of the New Jersey Central was perfected prior to the existence in New Jersey of any law prohibiting the lease of one railroad by another, and that, being legal, the combined railroads will be operated in accordance with the terms of the lease.

The Lumberman's Exchange of Macon, Ga., which has just been organized, with a capital of $20,000,000, is in reality a gigantic trust, comprising 45 of the most prominent milling interests in the State. Officers will be elected on the 19th inst., and the central office gets into operation May 1. Prices are to be uniform, doing away with commission men of all sorts.

Two twin-screw freight steamers for the White Star Line are building in England, and one of them, called the Navonic, will be in service about July 1. Twin screws are displacing single propellers as freight carriers as well as in the passenger service.

Trade in the British cattle markets is said to be the worst ever known. Extraordinary arrivals of American cattle have depressed prices to the lowest level ever touched.

The only purely Canadian line of European steamships owned in Montreal has paid but one trivial dividend of 5 per cent. to the stockholders since the year 1884. Steamship owners say the trade with the St. Lawrence can only be enlarged and extended by reducing tolls and charges on traffic and on ships, and by making the route a profitable one to those engaged in it.

A tabular statement showing the wheat production of the United States for a term of years, together with the average value per bushel, serves to establish the fact that the price realized responds to the quantity grown. Thus the yield of 498,000,000 bushels in 1880 brought 95 cents a bushel, but the next year, with the smaller yield of 383,000,000 bushels, the price was $1.19. The succeeding year the yield went up again to 504,000,000 bushels, and, sure enough, we find the price down again to 88 cents. So it is with cotton and many other commodities.

Anarchists in Paris, London, Spain and the Argentine Republic are agreed that the way to secure good government, and more particularly to promote the interests of the workingman, is to dynamite the houses of Parliament and other public buildings. Stripped of disguise, the idea is to give the workingman a plenty to do in collecting the *débris* and rebuilding.

With the steady fall in silver, which in 18 months has carried it from $1.17 an ounce to 85 cents, a fall of 27 per cent., it is not surprising that Sir David Barbour, the Financial Minister of the Anglo-Indian Government, in his budget for 1892–93, published March 17, allows for a fall in Indian exchange, which will cost the Indian Treasury next year $5,465,600. The rupee, which was once reckoned as worth 2 shillings, and which was placed at 1 shilling 5¼ pence for 1891, is placed at 1 shilling 4 pence for the next fiscal year of India. As the Indian Government remits $85,000,000 to London, the fall in silver and rise in exchange is a very serious matter in its expenditure.

An advance of $3 per head for steerage passengers from Europe by the steamship lines promises to retard immigration.

A long debate took place in the Canadian Parliament, 7th inst., on the proposition that Canada should possess power to make her own treaties. In reply, Secretary Foster said that the previous speaker, "If he obtained the power for Canada to negotiate her own treaties, would go straight to the United States, give them unrestricted reciprocity and discriminate against British goods. He would ask the House at once the question whether we should remain any longer a colony of Great Britain."

Labor in Brazil is so much disorganized that the coffee crop is gathered with extreme difficulty and transportation is delayed.

The savings banks of Cleveland, Ohio, have over $40,000,000 on deposit.

The Chinese merchants in New York, who are large importers of teas, silks and matting, think the passage of the Chinese Exclusion bill will ruin them. There are 35 Chinamen in San Francisco worth $100,000 or over. The Di Lung Shing Company there are worth $2,000,000. In this city the Ling Fong Company are worth $1,000,000, the Wo Kee Company $100,000 and Yut Sing $100,000.

A member of the Dominion Parliament, sojourning in Chicago, says the farmers in Canada are removing "by whole train loads" to the United States, on account of heavy taxation.

The first plate of American nickel-steel armor ever placed on an American warship was fastened in place on the coast defense armorclad Monterey on Friday, at San Francisco. It weighed 20 tons and was 13 inches thick.

The bill to make free of duty cotton ties passed the House of Representatives on Saturday by a vote of 166 to 45.

Freight rates to Mexico from Northwestern points have been reduced in competition with steamship lines from New York.

Sending liquid coal through pipes from Connellsville to New York, there to be pressed into bricks for fuel, after the water has been separated, is a new device which the New York Steam Company are preparing to introduce in that business. The coal will be piped at the rate of 5 miles an hour.

German exports to the United States during the present year have largely decreased, as compared with those of the corresponding period last year. In the Berlin consular district the decrease for the first quarter of 1892 is 8,000,000 marks, as compared with the same quarter of 1891, and in the Hamburg district 5,000,000 marks.

The Iron Age

New York, Thursday, April 14, 1892.

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JOHN S. KING, - - - - BUSINESS MANAGER.

The Western Outlook.

Good reasons exist for believing that the depth of the depression in the iron trade at Chicago has been touched and passed. The sales of local coke pig iron in March, at $12.50 for No. 2 foundry, have not only not been duplicated, but on the contrary good buyers have been unable to make contracts at bids of $1 per ton above this price. The production has been heavily curtailed by the blowing out of local furnaces, while the consumption of iron has been steadily on the increase with the opening of spring. In the case of more than one furnace company, daily shipments are now in excess of the output. There may for some time be more or less irregularity caused by offerings of Southern iron at low prices, No. 2 soft, for instance, having been tendered at $12.75, but such figures are wholly exceptional and could not be depended on by any considerable body of consumers. The attitude of the local producers being now in the direction of firmness, will have much more effect on the general course of trade than sporadic attempts to unload surplus stock from the South. It is true that a bearish view of the situation is taken by some consumers who are deferring their purchases in quantity until after the opening of lake navigation. They believe that Lake Superior non-Bessemer ore will then be forced on the market in large quantities, causing prices to drop below anything before known and cheapening the cost of producing pig iron, which will be kindly permitted by the furnacemen to pass to the benefit of their customers. It is by no means certain that the price of pig iron is not now down so low that a reduction in the cost of ore has been discounted. Waiving further discussion of this branch of the subject, the fact cannot be denied that the production of pig iron has been decidedly diminished, while consumption is increasing, and this is the essential feature of a radical improvement in business.

Our market reports have for some time shown a large volume of business in manufactured iron and steel in the Northwest. In these lines no improvement has been noted in price, but, very remarkably, as the demand has increased the price has fallen. The explanation is reasonable enough. Manufacturers elsewhere located have been in need of orders, and have taken as great a share as possible of the Northwestern trade, to make up for the quietness of business in other sections. Latterly there have been indications that some of the most persistent seekers for business have succeeded in filling their order books for a reasonable period ahead, and they are becoming apprehensive that they have loaded up too heavily at cheap rates. Consumers also are finding that it is possible for prices to be so low as to result to their injury, as quality is not being kept up to the standard expected. A reaction is distinctly visible in favor of manufacturers who have refused to meet the lowest prices quoted, on the ground that their reputation would not permit them either to use inferior material or to exercise less care in finishing their product.

Continued low prices are expected to rule until well into the summer. The improvement noted is not of a sufficiently pronounced character to cause a general upward movement. A great deal has been gained, however, if stability has been established, which now seems to be the case. If a manufacturer is reasonably assured that he can be able to dispose of his product without actually sacrificing it he can set to work to so reduce expenses and to cut down cost as to leave at least a little margin. This is the end which must now be most vigorously sought. There is no use in waiting, Micawber-like, for "something to turn up."

Disregard of Treaty Engagements.

The recent action of the House of Representatives in passing a bill to effectively exclude the Chinese from the United States emphasizes the unfriendly feeling manifested by this Government in several instances since 1881, the date of the treaty with China entered into during the Presidency of Chester A. Arthur. That treaty explicitly accorded to Chinese subjects all the rights, privileges, immunities and exemptions which are accorded to the citizens and subjects of the most favored nations. By that treaty the Government of the United States was pledged to "exert all its power to devise means for their protection" within our boundaries. Prior to the act of May, 1882, suspending the immigration of Chinese coolies, the restrictive legislation of the United States, with respect to immigration, was confined to the prohibition of the coolie involuntary immigration, and to the exclusion of certain delinquent and otherwise objectionable classes. Since then a decided feeling of animosity toward the Chinese has found expression and is gradually assuming a more virulent form, until at length a species of declamation, which in the beginning was contemptuously referred to as the "sand-lot oratory" of Denis Kearney and his hoodlum associates in San Francisco, has been transferred to the halls of Congress and is quoted with approbation. But public sentiment is far from being unanimous in approval of the pending Chinese exclusion bill. Protests of important bodies of educated men are already heard directed to the Senate of the United States, in which the contemplated measure is condemned as a wanton violation of treaty engagements, "unjust in itself and antagonistic to the traditions and principles of the United States."

What heinous offenses are alleged as having been committed by China to justify a deliberate affront by repeated unfriendly acts directed against a vast empire, of great antiquity, representing one-third of the inhabitants of the globe? The bill referred to, passed after only 30 minutes' debate, absolutely prohibits any Chinese, whether or not subjects of China (excepting diplomatic and consular officers and servants), from entering the United States, and the Chinese who may hereafter leave this country are prohibited from returning. It makes liable to arrest, upon warrant issued by any Justice, Judge or United States Commissioner, Chinese entering the United States by crossing its boundary lines or found unlawfully in the United States, and provides for the punishment of the Chinese by imprisonment not exceeding five years and subsequent removal from the United States to the country whence they came; provided that when they came to the United States from China by way of contiguous foreign territory they shall be returned to China. The act applies to subjects of China and all Chinese, even if subjects of any foreign Power. This is the most sweeping Chinese exclusion act hitherto proposed, and if carried into effect would inevitably cause a suspension of diplomatic relations, perhaps followed by retaliatory acts serious in their consequences. Under the Burlingame treaty, which was hailed at the time as a grand achievement of diplomacy, the United States enjoyed distinctions exciting the envy of all commercial rivals. And what on our part is the kind return? Upon analysis, the allegations made by those who so precipitately recorded their votes, as above stated, do not bear intelligent criticism. It is affirmed in substance (1) that Chinese immigration is threatening in numbers, and that (2) our trade relations are of little account. In regard to the former, the official statement from Washington shows that in the year 1890 there departed from the United States 8056 Chinamen and only 1716 arrived. The immigration from China reached its maximum in the years from 1869 to 1882, inclusive. During the decade ending with 1880 it amounted to 123,201, and during the eight years since 1882, when the law excluding Chinese laborers went into effect, only about 10,000 arrived. Respecting commerce, according to the same authority, the imports into the United States from China in 1891 amounted to $19,321,850, and our exports to China to $8,701,008—imports in excess $10,620,842. In the adverse current of trade China is not alone. Imports from Japan in 1891 were $19,000,000, and our exports less than $5,000,000. The excess of imports from Brazil for the same time was $69,000,000; from the West Indies, $52,000,000; from France $16,000,000. Yet nobody disparages the value of our commerce with any of the countries here named, or would raise new impediments to commercial in-

tercourse. On the contrary, "reciprocity" is in high favor.

The number of United States citizens in China in 1888, as shown by our minister at Pekin, was 1022, of whom 23 were in mercantile occupations, 28 were in the Chinese customs service, and 16 were engaged in mining. At the present time Americans are seeking to ingratiate themselves with the Chinese authorities in hopes of deriving some advantage from the extensive railway improvements and other important enterprises which are supposed to be in the immediate future.

From the foregoing cursory review of the relations subsisting between the United States and China, we think it appears that the attitude assumed by the House of Representatives toward a friendly power is clearly indefensible. This Government stands pledged by sacred obligations to admit within our borders all reputable Chinese and to refrain from any invidious discrimination. Until these privileges and immunities are formally abrogated there can be no evasion consistent with good faith and the national honor. Under existing circumstances the refusal of the Chinese Government to receive Mr. Blair as United States Minister should occasion no surprise nor be regarded as a ground of complaint.

Relief for the Poverty Stricken.

Late issues of British iron trade papers call attention to the existence in England of an institution which thus far has no counterpart on this side the Atlantic. The announcement is made that on May 31, the anniversary festival banquet of the Iron and Metal Trades' Pension Society will be held in the hall of the Ironmongers' Company in London. Walter Vaughan Morgan, one of the proprietors of the London *Ironmonger*, has been selected to preside as chairman upon this occasion, and has issued a circular letter calling for subscriptions to the treasury of the society. In this circular he states that the charity was established 49 years ago to aid and befriend decayed and necessitous members of the iron and metal trades, and during its existence has distributed in annuities an aggregate of £100,000, its yearly payments now amounting to upward of £3000, and the average number of recipients of its benefits being 160. More liberal support is called for, in view of the magnitude of the industries concerned. This is certainly a very praiseworthy organization, and should be much more liberally supported by the British iron trade than appears to be the case. The question arises in this connection whether the time has not come when the American iron trade should take measures to establish something of the same character for the relief of American unfortunates. There may perhaps be very few ex-manufacturers or iron merchants who are in need of the relief to be afforded by such an institution, yet it is hardly possible that there are none. In the absence of a systematic inquiry on the subject nothing definite or positive can be stated. Individual instances may be known to members of the trade, but there has been no reason heretofore to make them public. Happily, the condition of this country has been such that if there were any such cases they were taken care of by the people of their own immediate locality. But with our greatly increased population of recent years the fight for maintenance has grown harder, and poverty is a much more serious matter with us than it once was. We have many philanthropic iron manufacturers whose good deeds have made them famous. Their gifts of libraries, reading rooms and club houses to workingmen have been highly appreciated. Could not some of them unite to found a home for decayed members of the iron trade and endow it liberally, so that those who are so unfortunate as to have been deprived of both money and family would be provided with a pleasant haven of rest in which to pass their declining days? Such a scheme would, of course, not be complete unless it also provided relief at their homes for aged couples needing support, but who should not be separated. It would be interesting to have the views of the trade upon this matter.

The Commerce of San Francisco.

A question of great importance to the entire Pacific Coast of the United States was discussed at a recent meeting of the Technical Society of the Pacific Coast. The discussion was founded upon a paper by George W. Dickie, in *Industry*, in which he attempted "to show the commercial men of San Francisco and California how to take advantage of our position as the natural entry port for all commercial products required for consumption in the States and Territories west of the Rocky Mountains." The commerce of San Francisco languishes because she does not take advantage of her position as the natural entry port for the western side of the Republic. Since time is too precious to allow the manufacturer to get his material from the East or from Europe by sailing vessel, he must add to his estimate the cost of rail transportation, and "that usually sends the work to some other manufacturing center that knows better than San Francisco how to take advantage of the situation." The proposed remedy for this evil is the establishment of a line of steamers between San Francisco and Liverpool and San Francisco and New York. The author advocates a fleet of ten steamers, to be constructed at a cost of $680,000 each, one vessel to leave San Francisco on the 1st of each month for Liverpool and one on the 15th of each month for New York. These vessels to be fully abreast the times in design and equipment, to have a speed of 11 knots and a carrying capacity of 6200 tons independent of the coal. Calculated upon a basis of $10 per long ton, the gross revenue would permit of a dividend of 24 per cent. per annum.

The discussion of this paper brought out many points of vast interest not only to business men of the Far West, but to those of the East and Europe as well. The fact that fast ships intended for freight transportation form a reliable and safe investment was shown by reference to lines already established between other ports. To ship goods from Europe to San Francisco by rail—that is, from Liverpool to New York, to New Orleans and by rail to San Francisco—now requires 39 days. By sail requires 130 days. The contemplated line would receive less per ton of freight than the first-mentioned route now does, and more than the sailing vessels, and from this intermediate class its income would be derived. The steamer would land its freight with more reliability in regard to time than would the sailing vessel, and for that reason alone would be justly entitled to increased recompense. That there is a quantity of freight sufficient for the business of the new line that cannot patronize the slow sailing vessel and cannot afford the quick transportation was conclusively shown. Transportation by rail across the entire continent is too costly to be accepted except for comparatively few and light articles.

According to the laws of California, vessels registered there are taxed their full value, and a vessel worth $1,000,000 would, therefore, be taxed $27,000 a year. New York has no law of this kind, and in Massachusetts the ship pays nothing if she earns nothing. To avoid this taxation the vessels would be registered in New York or Boston.

The objection was brought up that the railroads by reducing their charges would run the steamships out of the business. Mr. Dickie in reply, said:

> No company can run at a loss except for a short time, or for a certain purpose; they cannot do it forever; the railroads must earn enough to pay running expenses. Now, it takes the same amount of fuel to carry 1 ton a mile on the railroads in this country as it does to carry the same amount 20 miles on an ocean steamship of the latest make. Such are the statistics in England, and they have been compiled very carefully. Now, it is simply a question of endurance. I hardly think it is possible that they can come under a cent a pound for freight and pay expenses.

In order to emphasize more definitely the demand for the establishment of a line of this description, Mr. Dickie mentioned how it would have benefited the Union Iron Works:

> I may state about the cost of ships for the United States Navy, now building here, that if the material for them were brought on steamships for $10 a ton from where it is manufactured, it would reduce the price of one of these vessels in San Francisco $46,000. That is the difference between carrying this freight by steamship and by rail. We are building a war ship of 10,000 tons displacement for the United States Government; if the material that comes from the East for that vessel could be brought by sea in the time that I have stated, and at the rate of freight I have stated, on that one ship it would make a saving of $97,000. Now, there is money in this matter of carrying freight. It would pay to run a steamship to get the railroad people down to the same rates under these circumstances.

A bill is now before Congress to provide for the continuance of a particularly valuable investigation. For the tenth census, Joseph D. Weeks of Pittsburgh, a recognized authority, prepared a volume on the

statistics of wages, the report covering the rates of wages paid to persons in different employments in the permanent industries of the United States for a series of years. In many cases these tables went back 30 years, and in others 40, 50, 60, and even 70 years. The bill in question has been introduced to provide for the continuance of this investigation by Mr. Weeks, under the supervision of the Secretary of the Interior. The plan is to bring the tables prepared in 1880 down to the present time and to extend the scope of the work, which hitherto dealt, in addition to wages, with the unit of payment, the opportunity for extra earnings, the advantages and disadvantages of overtime, the method and interval of payment, the hours of labor, the regularity of employment, the prices of product and the labor cost. The report covered iron and steel, boots and shoes, flour and grist mills, cigars and tobacco, glass, foundries and machine shops, rolling mills, mining, pottery, textiles of all classes, tanneries and wood working. We may mention as an instance of the magnitude of the undertaking that there are 40 tabulations in connection with the blast furnace industry, one of which gives the rates of wages of 13 classes of labor for each year from 1850 to 1880, the total tonnage of pig iron made, the total number of days' work paid for per year, the number of days' work to a ton of pig iron, the labor cost, the percentage of wages to cost, and the selling price of iron from 1860 to 1879. We need hardly emphasize the great value of such a monumental work, or the importance of bringing it up to date. Great historical interest attaches to the former volume, but it should be made directly and practically available to present conditions by the addition of the data which have accumulated during the past decade. We are convinced that the record would be a flattering one to our mechanical industries. No one is better qualified to gather the materials and to interpret the figures than Mr. Weeks.

The first of the heavy 10-wheel engines building at the Fort Wayne shops of the Pennsylvania company will be turned out this month. There are but ten of the engines ordered, and they are simply in the way of an experiment. The boilers will be nearly a duplicate of those on the heaviest freight engines on the system.

New Orleans is deriving much satisfaction from the heavy exports of grain from that port this season compared with any former year. Of wheat during the first seven months of the current year the exports exceeded 10,000,000 bushels, and of corn nearly 4,400,000 bushels. The great need of New Orleans is adequate elevator facilities and improved river navigation.

The suggestion to create a Department of Commerce and Trade, to be in charge of a member of the Cabinet, with the title of Secretary of Commerce, has met with approval in official circles at Washington. Such a measure would relieve the overburdened officials of the Treasury Department.

Pig Production Reduced.

As was generally expected, there has been quite a sharp reduction in the current production of pig metal, the furnaces working on the 1st of this month having a capacity less by 8440 tons weekly than the plants running on March 1. This is a start in the right direction, but, unfortunately, the reports of accumulating stocks, so far as they have been received, clearly indicate that iron has been piling up at a greater rate. It must be noted, however, that accumulations of stock are usual at this time of the year, being drawn upon during the summer months.

The weekly product of all the furnaces on March 1 compared as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
April 1, 1892	281	185,402
March 1	305	193,302
February 1	308	187,383
January 1	305	188,082
December 1, 189	298	188,135
November 1	304	187,685
October 1	306	181,615
September 1	290	170,846
August 1	296	169,576
July 1	293	171,115
June 1	278	146,782
May 1	227	115,590
April 1	228	113,483
March 1	257	134,526
February 1	294	146,050
January 1	302	167,599
December 1, 1890	340	183,846
November 1	342	177,958
October 1	336	179,293
September 1	323	171,776
August 1	324	164,798
July 1	326	175,727
June 1	345	180,791
May 1	344	180,089
April 1	344	178,474
March 1	343	180,991
February 1	334	173,651
January 1	333	174,038
December 1, 1889	328	169,151
November 1	323	165,225
October 1	311	151,057
September 1	294	134,068
August 1	286	145,899
July 1	285	141,419

The anthracite capacity working was as follows:

Anthracite Furnaces, April 1, 1892.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	19	7	2,689	12	4,648
New Jersey	12	3	1,546	9	2,732
Spiegel	3	3	223	0	0
Pennsylvania:					
Lehigh Valley	47	28	11,637	19	6,006
Spiegel	1	0	0	1	56
Schuylkill Valley	31	17	7,831	14	5,310
U. Susquehanna Valley	16	9	3,083	7	1,702
L. Susquehanna Valley	16	7	3,878	9	3,107
Spiegel	1	1	374	0	0
Lebanon Valley	15	9	5,226	6	2,050
Totals	161	84	36,487	77	25,701

For a number of months past our records show the following:

	Furnaces in blast.	Capacity per week.
April 1, 1892	84	36,487
March 1	89	38,678
February 1	92	38,124
January 1	94	38,307
December 1, 1891	85	34,905
November 1	87	33,802
October 1	85	32,459
September 1	82	31,214
August 1	88	32,860
July 1	92	37,892
June 1	91	36,561
May 1	90	35,331
April 1	91	36,598
March 1	93	38,543
February 1	95	40,212
January 1	101	43,166
December 1, 1890	105	43,474
November 1	104	42,141
October 1	100	38,627
September 1	104	39,115
August 1	106	41,013
July 1	112	42,543
June 1	117	45,142
May 1	123	46,912
April 1	119	46,110
March 1	115	45,790

The decline in the capacity working is due to the cessation of production on the part of a number of furnaces, among them being as already noted Secaucus, in New Jersey, Mount Laurel and Norristown in the Schuylkill Valley, one Bethlehem and one Lehigh in the Lehigh Valley, Paxton on the Lower Susquehanna, and one Colebrook and one Lebanon in the Lebanon district. North Branch has started since the opening of the month.

The position of the coke furnaces was as follows:

Coke Furnaces, April 1, 1892.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	6	3	3,664	3	2,010
Pennsylvania:					
Pittsburgh district	24	22	32,805	2	3,432
Spiegel	2	2	2,800	0	0
Shenango Valley	19	11	9,803	8	4,877
Juniata and Conemaugh Valley	17	8	5,686	9	3,801
Spiegel	1	1	791	0	0
Youghiogheny Val	3	1	1,072	2	1,500
Miscellaneous	4	1	648	3	1,078
Maryland	5	1	1,548	4	4,470
West Virginia	1	0	0	1	250
Wheeling District	9	8	8,816	1	0
Ohio:					
Mahoning Valley	15	9	8,924	6	4,060
Central & Northern	11	9	6,970	2	1,386
Hocking Valley	14	3	1,299	11	2,667
Hanging Rock	15	8	1,781	7	1,990
Indiana	2	1	223	1	180
Illinois	19	12	18,052	7	7,380
Wisconsin	4	1	1,128	3	2,110
Missouri	6	1	612	5	2,760
Minnesota	1	1	750	0	0
Colorado	3	0	0	3	1,700
The South:					
Virginia	18	9	5,278	9	4,680
Kentucky	4	3	1,444	1	310
Alabama	38	26	17,446	12	6,480
Tennessee	13	10	5,481	3	1,480
Georgia	2	0	0	2	1,045
North Carolina	1	1	95	0	0
Totals	257	152	138,116	105	60,186

As compared with previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
April 1, 1892	152	138,116
March 1	163	143,490
February 1	167	138,268
January 1	163	138,611
December 1, 1891	162	142,747
November 1	162	142,152
October 1	163	135,997
September 1	161	127,604
August 1	154	125,736
July 1	150	122,422
June 1	124	100,165
May 1	98	70,529
April 1	96	67,570
March 1	113	85,093
February 1	125	94,473
January 1	143	112,153
December 1, 1890	168	127,634
November 1	168	122,555
October 1	170	127,247
September 1	156	119,757
August 1	150	113,040
July 1	163	120,673
June 1	167	123,340
May 1	169	122,489
April 1	173	121,560
March 1	169	122,595
February 1	169	118,568
January 1	169	119,396
December 1, 1889	162	116,319
November 1	160	112,269
October 1	154	102,454
September 1	141	96,744

In the Pittsburgh district one of the Edgar Thomson furnaces has stopped and another of the same plant has swung over to speigel and ferro. In the Shenango Valley we must record the blowing out of Alice and Stewart No. 1. Rosena will soon cease operations, the lease of the plant not having been renewed. On the Juniata Everett banked on the 23d ult. In Ohio and in the Wheeling district production continues heavy, the only stack having stopped being Anna. In the Chicago district Calumet is the only furnace which has been blown out. The Illinois Steel Company are still running eleven furnaces, with an excellent record for output.

In the South, Crozer No. 2, Roanoke and Princess are idle. Dora is expected to make its first cast on the 18th, and one Big Stone

Gap on the 15th. No. 1 Ashland in Kentucky was to stop for repairs and the addition of new boilers on the 9th. Alabama is making a heavy product. Reports from all the furnaces running show an aggregate product for March of 76,476 gross tons.

On April 1 the charcoal furnaces stood as follows:

Charcoal Furnaces, April 1, 1892.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England	14	6	470	8	560
New York	6	3	375	3	240
Pennsylvania	13	2	165	11	860
Maryland	7	1	113	6	602
Virginia	13	0	0	15	860
Ohio	9	4	345	5	478
Kentucky	3	0	0	3	935
Tennessee	7	3	740	4	650
Georgia	3	0	0	3	660
Alabama	13	7	1,916	6	1,130
Michigan	20	10	3,568	10	2,609
Missouri	2	2	627	0	0
Wisconsin	5	4	2,020	1	90
Texas	4	2	460	2	438
California	1	0	0	1	120
Washington	1	0	0	1	170
Oregon	1	0	0	1	225
Totals	122	44	10,859	78	10,627

As compared with previous months, the record stands as follows:

	Furnaces in blast.	Capacity per week.
April 1, 1892	44	10,859
March 1	50	11,734
February 1	49	10,991
January 1	48	11,164
December 1, 1891	52	11,033
November 1	55	11,731
October 1	58	13,159
September 1	56	11,968
August 1	54	10,980
July 1	50	10,801
June 1	44	10,056
May 1	39	9,730
April 1	41	9,295
March 1	51	10,890
February 1	56	11,365
January 1	59	12,280
December 1, 1890	67	12,738
November 1	70	13,282
October 1	66	13,389
September 1	64	12,904
August 1	59	10,745
July 1	61	12,511
June 1	61	12,312
May 1	52	10,698
April 1	52	10,804
March 1	59	12,606
February 1	58	11,378
January 1	59	11,485
December 1, 1889	66	12,779
November 1	67	12,893
October 1	63	12,047
September 1	60	11,327

Stocks.

A still further increase in stocks has taken place during March, particularly among the anthracite and charcoal furnaces, with the result that the figures given herewith are the largest yet reached. A reaction is likely to take place during the current month, however, owing to the blowing out of a number of furnaces which produced almost steadily during March. Anthracite producers to the number of 34, 13 of which are idle, and whose weekly capacity is 21,000 tons, report 161,803 tons of stock, against 143,730 tons reported by the same number of furnaces on March 1. Reports from all the active furnaces in New York show that six of them carry 41,250 tons, which is an increase of about 1000 tons over last month. In New Jersey full returns show that 31,040 tons are about equally distributed in the yards of the active and idle furnaces. Schuylkill and Lehigh valleys contribute the bulk of the remainder.

The stocks of the charcoal furnaces, as reported by 25 active and 22 idle furnaces, whose capacity is rated at 11,150 tons a week, has reached 186,161 tons, an increase of 22,000 in one month, returns having been received from the same number of furnaces. Returns from all the furnaces in Michigan show that they have in yard 82,697 tons, while the four Wisconsin producers carried 28,122 tons.

Coke furnaces to the number of 143 report 523,566 tons of stock, as against 498,912 tons and 128 furnaces last month. Only about 30,700 tons of this is held by Allegheny County furnaces, while complete returns from the Shenango Valley show its share to be 87,621 tons. Reports of stocks from every furnace in Virginia figure up 74,619 tons. The active furnaces in Mahoning Valley, Ohio, report 36,465 tons, and returns from all the active furnaces in Alabama, Tennessee and Georgia figure up 154,828 tons of stock.

While the figures presented in connection with the coke furnaces do not indicate clearly the actual increase in stock carried, owing to the difference in the number of furnaces reporting, a glance at our records for the last two months shows plainly the following results: In New York one concern has reduced its stock during the month just closed by 1425 tons; in Allegheny County 2000 tons have been added to the stock of one producer and 2230 tons to that of another; in Shenango Valley one concern reports an increase of 2000 tons, another 1500, and others 1900, 4187, 2100 and 800 tons respectively. On the other hand, one furnace has unloaded 3480 tons, and three others 200, 1000, and 100 tons each. A slight increase only is noticeable in Virginia, and five furnaces in Central and Northern Ohio report an increase of only 379 tons. In Hanging Rock the conditions are practically the same. In Illinois the figure has increased by 4947 tons, while in Mahoning Valley one plant reports a decrease of 7240 tons, another of 1200 and one of 970, while only one concern has added to its stocks, the figure being 700 tons. In Alabama one large producer reports an increase of 5273 tons, while other have slightly reduced their pile, the conditions on the whole, however, practically remaining unchanged. With the exception of one furnace, all the coke producers in Tennessee have increased their holdings somewhat, the increase being 1000, 500 and 760 respectively. In the case of the odd furnace, 600 tons have unloaded. It will be seen, therefore, that the increase in the coke stocks has not been so large as was to have been expected.

PERSONAL.

R. C. Carpenter, professor of experimental steam engineering at Cornell University, Ithaca, N. Y., delivered an interesting lecture on "The Growth of the Mechanical Arts" to the members of the American Order of Stationary Engineers and others at Ithaca, N. Y., March 29.

J. S. Hibbs has resigned the position of general manager of the Peerless Facing Mills of the Chicago Foundry Supply Company of Chicago.

T. T. Hillman, vice president of the Tennessee Coal, Iron and Railroad Company, who has been spending the winter in Southern California for his health, has returned to Birmingham and has gone to Nashville to attend an important conference of officials of the company. He is much improved in health, and it is expected that he will take active steps at once looking to the building of the proposed steel plant at Ensley City, Ala.

Andrew Carnegie sailed for Europe yesterday.

W. L. Abbott, who still retains a general interest in the Carnegie Associations, will probably sail for Europe for a six months' tour on the 28th of this month.

H. M. Howe of Boston has been retained as an expert for the Pottstown Iron Company in their suit with the Bessemer Association.

The firm of Lefever & Bremmer, of Syracuse, N. Y., believe that they have discovered the secret of firing dynamite from an ordinary piece of ordnance with common gunpowder. They have secured a large gun and will set it up near Onondaga Valley. Their shells will soon be ready for the first experiment, which will soon be made.

Among the general managers appointed by the Governor of the State of New York to arrange for the exhibit of the State at Chicago are Walter Stanton of New York, Daniel M. Somers of Brooklyn, George S. Weed of Plattsburg, and Robert H. Thurston of Ithaca.

Josef Reuleaux, for several years chief draftsman for Alex. Laughlin & Co., engineers and contractors, Pittsburgh, Pa., sailed for Europe on Wednesday, the 13th inst., in the interests of that firm, to look up the latest Continental improvements in rolling-mill practice.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., April 12, 1892.

There will be a lull of a fortnight in tentative free raw material legislation pending the passage of several appropriation bills which have been reported. After these have been disposed of the House will take another twist on the protective policy, specifically on iron ore, coal, salt and lumber. The bills already reported or passed, including cotton ties, will, it is proposed by the tariff revision theorists, make the record for campaign purposes.

The election results in Rhode Island, which were brought about purely on economic questions, have considerably dampened the ardor of the political managers, but not so the advocates of tariff revision. They propose to carry out their programme, and will make their contest in the national arena on that record.

There has been much disappointment on the part of the political managers on account of the popular indifference to the discussion on the plan of revision proposed.

It is assumed that this apathy on the part of the industrial world is due to a belief in the rejection of all these measures by the Senate.

The free wool and other bills which have passed the House are now before the Senate Committee on Finance. Senator Aldrich, who has just returned from his successful campaign in Rhode Island, which insures six more years of his valuable services in behalf of the American protective policy in the Senate of the United States, will now take up these bills and prepare them for committee action.

It is his plan to report them with radical amendments in the line of the protective policy, and to favor the widest debate.

In speaking on the subject of his recent experience in his own State Senator Aldrich said: "Although the people are apparently not saying much about the tariff or industrial legislation, I find they are keeping up considerable thinking. They are opposed to any agitation of the tariff, but as the tariff reformers have started the issue we are expected to meet it, and that we will do. The free raw material scheme is not favored by any of the friends of protection. All interests must stand together. I believe a majority of the people believe in protection on wool and iron ore as much as they do on cotton textiles and pig iron, or the higher stages of manufacture. The advanced position represented by reciprocity will be of immeasurable advantage in the extension of our markets into foreign countries. I have no doubt that the tariff debate in the Senate will be interesting. It will certainly draw the lines as between parties on that subject for campaign purposes."

Stove Foundry Practice.

Under the initials of H. R. H., an engineer connected with a large works is contributing to *The Metal Worker* a series of articles on stove manufacture, from which we take the following relating to foundry practice :

In no other department of a stove foundry are the results so often questioned as those obtained in melting iron. Charging lists showing high ratios of iron to coal are viewed with suspicion until the coal and iron accounts have been examined and found correct. All foundrymen take pride in exhibiting melting statistics which show a high ratio of iron to fuel. These are of little value unless accompanied with more complete data as to the loss of plate due to bad iron, the dimensions of the cupola, amount of iron melted and the time taken to run off the heat. A high ratio of iron to coal does not necessarily indicate economical melting. It undoubtedly shows a saving in fuel, but this can be easily offset by other losses which make this saving a positive disadvantage. In the various designs of cupolas met with in the stove industry the principal points claimed are greater economy in fuel and less time required to melt a given quantity of iron. These claims are made with the understanding that the quality of iron produced shall be the same and that the repairs to cupola lining shall be no greater than in any other form with which comparison is made.

There is great room for lessening the amount of fuel required to melt a given quantity of iron. Under the best conditions the ordinary cupola has a very low efficiency. Hardly one-third of the total heat of the fuel is utilized in melting the iron. Many attempts have been made to secure greater efficiency, with but partial success, so that to-day a greater or less ratio of iron to coal depends almost entirely upon the amount of iron melted. Aside from the great amount of heat carried away by the blast, the bed of fuel is the great obstacle to overcome. Where this is distributed over a great quantity of iron the loss becomes less. Hence the cupola melting the greater quantity of iron will necessarily show the higher ratio of iron to fuel. Another barrier to progress in fuel saving is the prejudice of the ordinary melter. His experience tells him that just so much fuel is necessary for a given quantity of iron. Convince him to the contrary by using less for a given period and the slightest variation in the conditions under which proof was made will be sufficient cause for him to use his own judgment and fall back to his own ideas of the amount required. Probably the cost of unsuccessful experiments with a cupola deters most foundrymen from investigating the question of fuel more thoroughly. They must be made under the conditions which occur in daily practice to be of value. If bad iron should result, no matter to how great a number of other causes it can justly be attributed, it is laid to the diminished quantity of fuel used and is sufficient reason for the melter to quietly increase this quantity. Knowing these facts, it is no wonder that the fuel accounts need careful watching. More perfect combustion is the essential factor in reducing the amount of fuel required. To effect this some inventors have introduced rows of tuyeres to admit air at different points so as to consume the carbonic oxide. Theoretically cupolas of this design should show greater efficiency. Innumerable forms of cupolas exist. Every foundryman has his own ideas and consequently nearly all cupolas vary in some particular. The outline is varied in some respects; the tuyeres are of various shapes and sizes; the blast pipes and wind belt connected and proportioned differently. Of the innumerable forms in use, undoubtedly the most popular is the straight cylindrical stack. As good results—considering ratio of iron to coal, quality of iron and repairs—have been obtained with the plain stack as with any of its many modifications and for true economy it is not surpassed by any.

Specifications for an Ordinary Cupola.

Probably the sizes of cupola most used in stove plate foundries are those having an outside diameter varying from 5 to 6 feet. These can be used to economically melt any quality from 14 to 20 tons and in case the cupola is slagged out the amount which can be conveniently melted may be put at between 30 and 35 tons.

The following general specifications may be of service to those contemplating erecting a cupola:

Hight to be from 45 to 60 feet, depending on existing conditions.

Cupola to be constructed from good iron, and the various sections to be securely riveted together and to each other. The two lower sheets to be $\frac{3}{8}$ inches thick; $\frac{1}{4}$-inch iron to be used from this point till the charging door is passed and $\frac{3}{16}$-inch iron used in remainder of the stack; strengthening flanges to be placed at top and bottom of cupola. The bottom one to be $3\frac{1}{2}$ inches by 1 inch and the top 2 inches by 1 inch, securely fastened to shell.

Two rings of angle iron to be securely riveted to the shell, one midway between bottom and charging door, the other just above charging door, to permit of repairs being made to any section of the lining without necessitating the removal of the whole.

One or two openings, depending on the amount of iron to be melted, to be left about 12 to 15 feet from the bottom for the purpose of charging. These openings should be 3 feet 6 inches across by 2 feet 6 inches or 3 feet high, and provided with a frame securely fastened to the shell on which the charging doors may swing. In case no charging doors are used, the metal of the shell may be turned into a strengthening flange and the frame discarded. In case charging doors are used they should be framed so as to hold a brick lining for their protection.

Suitable openings, varying in size and form, should be left in the bottom sheet for the admission of the blast from the fan or blower. The total area of openings should be from 10 to 15 per cent. of cross section of cupola. Tuyeres of proper form and size should be made to fit openings in shell and conduct blast through cupola lining.

A wind box of proper size should be riveted to the cupola at a given hight to conduct the blast to the different tuyeres. The wind belt should be made air tight to prevent loss.

A very heavy bottom plate on which cupola rests should be furnished, provided with suitable legs for swinging the bottom doors.

The frame of the bottom doors should be of heavy iron and covered with a light boiler iron—say $\frac{1}{8}$ or $\frac{3}{16}$ inch thick.

Iron columns or brick foundation should be provided which will hold cupola securely a proper hight above bottom of pit to allow the bottom doors to swing freely and the dump to be easily removed.

A proper scaffold of suitable dimensions should be erected. Its size depends entirely upon the amount of iron melted and the stock which it is desirable to carry at this point. Many foundrymen keep the stock on the scaffold very low, while others keep at least one day's supply ahead to provide against possible accident.

Lining a Cupola.

Having the cupola in position, scaffold erected and the air pipes connected, the cupola is ready for its lining. The brick used are from 5 to 7 inches long, $2\frac{1}{2}$ to 4 inches thick and 6 to 12 inches wide. These are laid in a thin grout of kaolin and fine sand and they should be properly keyed to prevent jarring out of place. The grout for laying the brick is made from equal portions of fine clay and fine sand to which a quantity of rock salt is added. These are mixed in water, boiled and strained and the grout is then ready for use. Split brick are found necessary in filling in around tuyeres, charging door, and in completing the different courses. Where the area of the cupola is contracted above the tuyeres, a special lining is necessary for a certain distance and then the uniform size of brick can be used. In some foundries a thinner lining is used above the charging door, as the heat there is much less intense. The greatest repairs to the cupola lining will be found necessary at the melting point, where the greatest heat is and where the greatest wear is from chipping down. It will be found necessary to reline the first sheet about 2 or 3 times a year and to extend the repairs as far as the charging door once in the same period. Above the charging door the lining will be found to last a number of years. A slow fire should be used to dry out the lining, in case the cupola is to be put in operation before the lining has a sufficient time to become seasoned.

Preparing a Cupola for Melting.

The first work of preparing a cupola for melting is to put in the sand bottom. The bottom doors of the cupola are braced in position and old molding (or sand obtained from cleaning the gangways after shop is in operation) is used to cover them. The sand bottom should be about 5 to 7 inches thick at the tapping hole and slope gradually to the rear and sides, thus causing the iron as melted to naturally run toward the tapping hole and permit the cupola to be cleanly tapped.

The runner or spout from cupola over which the iron runs to the ladle should next be covered with a mixture of fire clay and fine sand and grooved so as to have the iron flow in a proper stream. The breast is next placed in position. This may either be a fire brick with a hole of suitable size for the iron to flow through or a mixture of fire clay and fine sand packed in the opening of the cupola shell. In case the cupola is in operation, the first step necessary is to chip down. This consists in removing the portion of fuel, iron and slag which adheres to the cupola lining or which may be left in the cupola when dumped. Care should be taken in this work that the lining of the cupola is not badly broken and that the necessary daubing and patching are done properly, so as not to leave high projections on which the charges may be liable to catch. After having chipped down the cupola the process of preparing a cupola, thus far described, is repeated.

The kindling is next placed in position. Shavings are laid around the edge of the cupola so they can be lighted from the tuyere openings. Small pieces of wood are then placed over these but free from them to allow proper draft. Cord wood, slabs or other wood is then put crossways of cupola, being raised in the center to permit of a good draft. The bed of coal or coke is now put in cupola and it is then ready to light. The cupola is lighted about 2 or $2\frac{1}{2}$ hours before the blast is put on and the iron is charged after the bed has become sufficiently ignited. Generally the charging commence in about $\frac{1}{2}$ to 1 hour after the bed has been lighted.

Having charged the desired amount of fuel and iron, or all that it is possible, as the case may be, and the time for putting on the blast having arrived, the outside openings admitting air to the tuyeres should be tightly closed and the signal given to start the blast-generating machin-

ery. The valve admitting the blast to the cupola should be but slightly opened until the iron shows in proper form at the tapping hole, which will occur in about ten minutes after the blast has been on. The tapping hole should then be stopped, the valve for the admission of air opened wider and the pouring of the molds proceeded with. The first few ladles of iron should be put in the cheaper class of inside plates, such as grates, fire plates, &c. By this means all the iron is used and the poorest placed in plates where it will do no harm. After all the molds have been poured, the iron should be tapped as cleanly as possible and the cupola bottom dropped. Some foundries use a large form of heavy iron operated by a windlass for breaking up the dump and making it easy to remove. The large cupola forks, in places where this arrangement is not in use, should be used to break up the dump. While not so effective as the first method, the latter will be found useful in facilitating the removal of the refuse from the previous day's cast.

Charging the Cupola.

In many foundries large pieces of scrap plate are thrown in on top of the bed to prevent the iron from sinking unevenly in the fuel or breaking the same too much. The first charge of iron is put in cupola and then follow successive charges of fuel and iron until the desired amount of iron has been used. The various brands of iron used should be distributed well in charging so as to give a uniform mixture. In many places the pigs are broken in quarters. This permits of easier melting and allows the irons to mix well. In foundries where this practice is not adhered to, the argument advanced is that the saving in fuel is not sufficient to pay for the labor, and grave doubts are expressed as to whether the irons mix any better.

No two cupolas are charged exactly the same. The amount of fuel on the bed or between the charges differs, while varying amounts of iron are used in the charges. Below will be found charging lists from some of the prominent stove foundries in the country:

A—Bed of fuel, coke.....1500 pounds
First charge of iron.....5000 pounds
All other charges of iron .... 1000 pounds
First and second charges of coke, each..... 200 pounds
Four next charges of coke, each..... 150 pounds
Six next charges of coke, each. 120 pounds
Nineteen next charges of coke, each..... 100 pounds

Thus for a melt of 18 tons there would be 5120 pounds of coke used, giving a ratio of 7 to 1. Increase the amount of iron melted to 24 tons and a ratio of 8 pounds of iron to 1 of coal is obtained.

B—Bed of fuel, coke.....1600 pounds
First charge of iron..... .....1800 pounds
First charge of fuel..... 150 pounds
All other charges of iron, each.1000 pounds
Second and third charges of fuel..... 130 pounds
All other charges of fuel, each. 100 pounds

For an 18 ton melt 5060 pounds of coke would be necessary, giving a ratio of 7.1 pounds of iron to 1 pound of coke.

C—Bed of fuel, coke.....1600 pounds
First charge of iron .....4000 pounds
First and second charges of coke..... 200 pounds
All other charges of iron.....2000 pounds
All other charges of coke..... 150 pounds

In a melt of 18 tons 4100 pounds of coke would be used, or a ratio of 8.5 to 1.

D—Bed of fuel, coke.....1800 pounds
First charge of iron.....5600 pounds
All charges of coke, each..... 200 pounds
All other charges of iron.....2900 pounds

In a melt of 18 tons, 3900 pounds of fuel would be used, giving a ratio of 9.4 pounds of iron to 1 of coke. Very high, indeed, for stove plate.

E—Bed of fuel, coal.....1900 pounds
First charge of iron.....5000 pounds
First charge of coal..... 200 pounds
All other charges of iron, each.2000 pounds
All other charges of coal, each. 175 pounds

In a melt of 18 tons 4700 pounds of coal would be used, giving a ratio of 7.7 pounds of iron to 1 pound of coal.

These are sufficient to demonstrate the varying practices existing among different stove foundries. In all these places the iron was proper for stove plate purposes, and apparently there was little or no difference in the kind of work in the sand at the different foundries.

It will be noticed that the best ratio of iron to coal is obtained where the heaviest first charge of iron is used, thereby utilizing a greater proportion of the heat contained in the bed. Where heavy charges of this kind are used, it is essential that a large number of men draw from the cupola when this charge comes down, preventing the iron becoming dull by standing or effectually stopping any possibility of the iron running in the tuyeres, in case they are near the bottom. Care should also be exercised that too much iron is not charged on the bed, or it will be found that too much of the bed will be exhausted in melting it and dull iron will follow for a portion of the cast, until the bed has been replenished sufficiently by the successive charges of fuel.

The amount of iron charged before the blast is put on depends on the size of the cast. In the case of a heavy melt the cupola is filled to the charging door and allowed to stand until the iron is tapped and room is thus made for more to be charged. Where the cast does not run so great the practice is to put in one charge less than was used the previous day, and to afterwards charge what is found necessary from "taking up the iron." This is merely a visit to each molder to find the amount of iron, greater or less, he will need to pour the molds he may put up. Balancing this list gives the amount, more or less, by which the previous day's melt has to be changed to obtain the proper quantity for the day in question. The quantity of iron named by the molders is sometimes far from correct—especially on Saturdays and Mondays—and unless the melter keeps a sharp look out during the progress of the cast, there will be an abundance of iron left over. This state of affairs can be provided against only by reducing the amount of iron below that found necessary by a canvass of the shop and then standing ready to add an extra quantity of iron when necessary.

The question of overcharging a cupola has been often discussed. The western foundries make no attempt to run their cupolas close, and consequently have a very large quantity of iron and fuel in the dump. Such practice insures good iron for the last molds and reduces the wear and tear on the cupola lining. It is of questionable economy, and a comparison of costs with the foundries running their cupolas close will undoubtedly show that the cupola costs per ton of perfect castings are very high. Again, a large amount of fuel is wasted in melting this excess of iron, and while many of these foundries will show very fine results on the basis of iron charged to fuel used, when perfect castings to fuel used is taken as the basis of comparison, the favorable showing is greatly reduced and in many instances entirely wiped out. Really the latter is the true basis of comparison; because, where a foundry uses no outside scrap the perfect castings should be equal to the pig iron used, added to any plate thrown out from the racks from any cause aside from discount and broken, this amount being reduced by the usual percentage of loss in remelting. As every foundry tries to reduce the loss from obsolete plate and incorrect patterns to a minimum, the weight of castings thus discarded has become a very small per cent. of the total product in the best managed foundries, and for the purpose of argument can be omitted.

The problem then presented is: How much fuel has been used in melting a given quantity of pig iron? If in melting 3000 tons of iron one foundryman's practice compels the charging of 6000 tons of pig and scrap, while another gets along with 5000 tons of pig and scrap, the first has actually wasted the fuel necessary to melt 1000 tons of iron, which we will say is 140 tons of fuel, which, at $5 per ton, amounts to $700—quite an item. The advocate of overcharging may say that this loss is easily made up in better iron and less repairs to cupola. To which may be replied that there are foundries where close charging is the practice which have uniformly good iron and a very low cost for cupola repairs. It is true that there are other causes aside from overcharging, such as the size of sprews and gates, gangway loss, broken and discount, which affect the percentage of perfect castings, yet there is no foundry in which the overcharging idea rules but might effect a very handsome saving by confining the weight of iron charged more closely to the actual wants of the molders.

OBITUARY.

ARIO PARDEE.

On March 30 a large assemblage of people gathered at Hazleton, Pa., to pay the last tribute of respect and affection to their friend, associate and employer, Ario Pardee, who had died suddenly at Rock Ledge, Fla., on March 26. The large concourse of people of all degrees, the idle collieries and closed stores of the town all testified to the great regard in which this most estimable man was held. So sudden and unexpected was his death that it is almost impossible to realize that he has passed from among us, that never again shall we know his kindly presence and no more shall his wise and helpful counsel guide us in our perplexities.

His ancestors were French Huguenots who fled from France to England, to escape persecution, and who subsequently emigrated to this country in the early part of the seventeenth century. His more immediate forebears were Dr. Pardee, a surgeon in the Continental army, who was his paternal grandfather, and Capt. Israel Platt, of the New York Line, his grandfather on his mother's side, and who served through the Revolutionary War. With such an ancestry it is not surprising that he should have been endowed with the qualities of honor, probity and persistency of purpose which characterized his life.

He was born in Chatham, Columbia County, N. Y., on November 19, 1810, but in his early life his family moved to a farm at Stephentown, Rensselaer County, N. Y., where he led the usual life of a farmer's boy, attending the district school when there was one and at other times educating himself at home during the leisure moments.

This continued till his twentieth year, when he received the appointment of rodman in the Engineer Corps of the Delaware and Raritan Canal under Messrs. Edwin A. Douglas and Canvass White, the latter of whom was Chief Engineer of the Canal Company. He joined the corps in June, 1830, near Trenton, N. J. Remaining there until the canal was located, he was transferred to Princeton on the middle division of the canal, which was under George Tyler Olmsted.

In the autumn of 1831 he was sent as sub-assistant to Ashbel Welch at Lambertsville, N. J., on the Delaware and Raritan Canal. The association with Mr. Welch was one to which Mr. Pardee delighted to refer, and when in after years

they again became co-workers the gratification was mutual

In the spring of 1833 he was sent, under Messrs. White and Douglas, to Beaver Meadow, Pa., to make the location and survey of the Beaver Meadow Railroad from the mines of that company to the Lehigh Canal at Mauch Chunk. Shortly after this the entire charge of the railroad was given to him, and in the autumn of 1836 it was finished and the shipment of coal begun.

He then resigned his position, and in February, 1837, went to Hazleton, Pa., to live, having previously located a railroad from the Hazleton coal mines to the Beaver Meadow Railroad at Weatherly. The road was finished and coal shipments begun in the spring of 1838. He continued with the Hazleton Railroad and Coal Company as their superintendent until 1840, when he begun his career as a coal operator.

Soon after this he entered into partnership with J. Gillingham Fell of Philadelphia, forming the firm of A. Pardee & Co. This partnership continued until Mr. Fell's death, which occurred about 15 years ago, and Mr. Fell's estate retaining their interest in the firm, its name has never been changed.

Just before the close of the Civil War Mr. Pardee became interested in the iron business, and gradually increased his investments in that industry. He was president of the Musconetcong and Secaucus Iron companies in New Jersey, and a stockholder in the Andover Iron Company in the same State. He held stock in many of the leading companies in the Lehigh Valley, and he had interests in New York, Virginia, North Carolina and Alabama. He was a large owner in the Watsontown Car Shops, and his investments in lumber were nearly as extensive as were those in the iron business.

Up to within the last few years of his life he exercised an active oversight of his various enterprises, but with the weight of years upon him he withdrew from the direct personal supervision, leaving his business in the hands of his sons, while he acted in an advisory capacity and took his well earned ease and rest from the multifarious cares of a business life of over half a century. It is not given to many men to amass a fortune as did Mr. Pardee—he was a producer, and, adding to the country's wealth, a portion came to him. And if the man "who made two blades of grass grow where one grew before" deserved well of his fellows, how much more must he deserve who caused many blades of grass to grow where none grew before. His public benefactors were monumental and judiciously bestowed, the principal one being the building of Pardee Hall at La Fayette College, Easton, Pa., and the endowment of the scientific department of the same institution. From this department have been graduated many men who have taken high rank and honorable positions in the industries with which Mr. Pardee was so intimately connected. His private charities were many and made in such a way that but few knew of them but the recipients. His thoughts and feelings were as charitable as his deeds, and it was seldom that he failed to find an excuse for the many weaknesses to which human nature is prone. His end was as peaceful and calm as had been his life, and surrounded by members of his family he passed quietly away, leaving to his children an unalterable legacy in the record of a life well spent and a character for personal probity and business morality which, tried in the fierce fires of prosperity and threatened adversity, emerged without a stain and which has never been questioned. K. R.

Over 5000 immigrants arrived at New York one day last week.

MANUFACTURING.

Iron and Steel.

Shelby Steel Tube Company, Shelby, Ohio, have recently increased their capital stock another $100,000. It is their intention to erect two more buildings, which will give a capacity of over 7,000,000 feet of tubing per annum. This will require additional machinery and the employment of some 300 or more hands.

The Coosa Furnace at Gadsden, Tenn., which has been banked for several weeks, has resumed operations.

The Chancery Court has ordered a sale of the Talladega, Ala., furnace property, after 90 days' notice, unless the indebtedness of the company, about $165,000, is paid within 30 days. It is generally believed by those acquainted with the situation that the property will be bought in by agents. The sale will take place in July and it will probably be September before the furnace blows in again.

The Harriman (Tenn.) Rolling Mill has closed a contract to furnish to Queen and Crescent Railroad 23,000 pairs of steel angle plates.

It is stated that a company of Boston capitalists desire to erect an iron furnace along the line of Marietta and Georgia Railroad in Tennessee and negotiations are now pending. If the furnace is built it will have a capacity of not less than 100 tons per day.

The plant of the Henderson Steel and Mfg. Company at North Birmingham, Ala., has been sold under a degree of the Chancery Court, foreclosing a mortgage held by the North Birmingham Land Company. The property was auctioned off to the highest bidder and was purchased by Dr. Charles Dreuner for $4948.

The unfinished boiler house of the American Wire Works in Cleveland was blown to the ground last week, just as the building was ready for the roof.

The Waukegan Iron and Steel Castings Company are now employing upward of 60 men in their new foundry at Waukegan, Ill. Having established a good trade in gray iron castings, they began last week the manufacture of steel castings by a patent process which has proved very successful in England. C. R. Rathwell is president and treasurer of the company, and George C. Marsh is secretary. They have opened a Chicago office in the Monadnock Building, corner Jackson and Dearborn streets.

A company is to be incorporated under the name of Eagle Iron Company, to build and operate a blast furnace to manufacture charcoal pig iron at Spring Valley, Wisconsin. The furnace will smelt the local brown hematite ores, of which there is a very large deposit analyzing 50 per cent. metallic iron, and 0.06 to 0.10 phosphorus. S. Frank Eagle, late of Youngstown, Ohio, is interested in the company and will doubtless be in charge of the plant, but the officers have not yet been elected.

The long-continued litigation of the affairs of the Worcester Steel Works of Worcester, Mass., has been brought to a close by the decree of Judge Forbes ordering the assignees of the estate to pay and distribute the sum of $136,455.27, among the creditors whose debts have been proved, at the rate of 27 cents on the dollar. There are 21 creditors to the estate. In the case of George M. Rice, the court orders that $39,186.22 be distributed among 63 of his creditors whose claims have been proved. He is to pay 6 8-10 cents on a dollar.

The plant of the Johnson Company, Johnstown, Pa., has gone on double turn.

The work of rebuilding the Girard Furnace, at Girard, Ohio, is nearing completion, and it is expected that operations will begin before the close of the month.

The contract between James E. York and the Ironton Land Company for the erection of a structural steel works at Ironton, Ohio, which has been under negotiation for the past year, has at last been completed.

The Fannie furnaces, at Shawnee, Ohio, owned by F. S. Wright of Newark, Ohio, have been sold for removal to Wisconsin.

J. A. Herrick, consulting engineer and furnace builder, 15 Whitehall street, New York, is building a gas heating furnace for the Bridgeport Rolling Mill, lately acquired by Wilmot & Hobbs of Bridgeport, Conn. The furnace will be 7 x 15 on bed, and one generator is to be placed back of the gas regenerator and to each side of the valves, thus economizing floor space, making a very solid structure and allowing the foundation of the furnace to be placed only some 2 feet below the ground level. In this particular instance the tidewater is only 3 feet below floor level, and this type of furnace was designed several years ago to meet these requirements and a number are now working very satisfactorily. Mr. Herrick is also erecting an improved 12-ton open-hearth furnace and a 24-pot gas crucible furnace, with the needed producers, ovens, annealers, &c., complete, for the Congdon Brake Shoe Company of Chicago, for their new steel casting plant.

Referring to the report recently circulated, and which has been given considerable publicity, to the effect that the nail factory of the Laughlin Nail Company, located at Martin's Ferry, Ohio, had been closed down for an indefinite period, we are authorized to state that there was not the slightest foundation for the statement. The nail factory of this firm contains 225 nail machines, their annual capacity being 600,000 kegs of nails. Their factory has been in constant operation right along, and the product is shipped about as fast as made.

It is reported that the Mt Laurel Furnace, operated by the Clymer Iron Company, at Mt. Laurel, Pa., is being dismantled. The original stack was built in 1836, and rebuilt in 1847, during which time it was run as a charcoal furnace, but was altered for anthracite in 1873.

A number of heaters employed in the rail mill of Carnegie Brothers & Co., Limited, at Braddock, Pa., have been suspended owing to some improvements made in the machinery, the nature of which is such that their services are no longer required. Heretofore the blooms for the blooming mill have always been reheated in the rail mill furnaces, after being cut at the shears, but in the new practice the pieces are taken direct from the shears to the rail mill rolls. There have always been five reheating furnaces in the rail mill, and four of these have been taken off, leaving one in case of accidents to heat the cobbles.

Last week in the courts at Pittsburgh an opinion was handed down in the case of Shoenberger & Co., proprietors of the Juniata Iron and Steel Works in that city against the Equitable Gas Company. The plaintiffs were preferred consumers and had a contract with the company to give them a permanent supply of gas. The contract, however, was to be void should there be a shortage in the supply. At the time of making the contract the production was 50,000,000 feet of gas per day. When the notice was sent to the plaintiffs that their supply would be stopped the production had decreased to about 26,000,000 feet per day. The plaintiffs wanted the court to restrain the defendant company from shutting off their supply of gas, but the court decided that under the contract it would rule in favor of the defendants.

On Thursday, the 7th inst., O. P. Mason, Bellaire, Ohio, inventor of the ingot manipulator, shipped one of these manipulators to the Pottsville Iron and Steel Company, Pottsville, Pa. Mr. Mason advises us that he has been in receipt of numerous foreign inquiries in regard to these manipulators, and has recently established agencies for the sale of them in France, Germany and England.

Wallace, Banfield & Co., Limited, of Pittsburgh, proprietors of the Irondale Rolling Mill, at Irondale, Ohio, have recently made a large shipment of tin plates to L. C. Beardsley & Co., Cleveland, Ohio. At present this firm are turning out about 130 boxes of plates per day, but expect to increase this in the near future to 250 boxes per day.

Machinery.

The foundry of the Syracuse Steel Foundry Company, Syracuse, N. Y., which was destroyed by fire January 7 last, has been rebuilt, and the last of the machinery is now being placed preparatory to starting up. The company have also completed a second open-hearth furnace. The plant consists of the following buildings: A machine shop 60 x 142 feet ground dimensions; a melting room and storehouse 85 x 192 feet; a molding room 74 x 133 feet; a coreroom 20 x 70 feet; a separate boiler house 49 x 65 feet; a pattern shop 20 by 60 feet; an office building 28 x 30 feet.

The Sullivan Machine Company of Claremont, N. H., and the Diamond Prospecting Company of Chicago, having been closely identified for a number of years, have formed a new company, the Sullivan Machinery Company, to carry on as one organization the business formerly done by the two companies. The capitalization has been increased $500,000, and a plant will be located in Illinois, on the line of the C., B. & Q., for the manufacture of heavy machinery and repair work.

The Ketcham Iron Company of Fort Smith, Ark., have increased their capital from $15,000 to $50,000, and will largely increase their facilities

O'Connell & Rogers, extensive dealers in railway, mining and mill supplies, Chattanooga, Tenn., have made application for a charter.

The Lodge & Davis Machine Tool Company, Cincinnati, have just opened a new machinery store in Cleveland, Ohio, at 32 South Water street, for the exhibition and sale of their machine tools. They will carry a stock of their latest tools.

The Rome (Ga.) Street Railroad Company will erect a power plant with machinery to light the city with incandescent lights, and will also be prepared to bid on the city street lighting.

Mention of the plant of the Hydraulic Machine Company of Pittsburgh has already been made in these columns. A charter has recently been granted to this firm, with a capital stock of $100,000. The company are composed of Henry Aiken, R. F. Moss, J. B. Scott, G. E. Flanagan and J. J. Curton.

The Union Foundry and Machine Company of Pittsburgh are building a double-crank press for pressing shovel blanks to be placed in the new works now being erected by the Russell Shovel Company at Aliquippa. This firm are also turning out considerable tin-plate machinery.

The Eureka Wood Pulley Company of Berlin, Pa., have been granted a charter of incorporation, with a capital stock of $30,000.

The Alexander Foundry and Machine Shop, at Alexandria, La., will be greatly enlarged in the near future and a number of new machines will be put in.

The Detroit Foundry Equipment Company, manufacturers of the Whiting patent cupola, recently completed the largest cupola of this type ever manufactured, the outside diameter of the blast chamber being 11 feet, and the cupola with platform occupying a space 15 feet in diameter. There are 11 sizes of the Whiting cupola now being manufactured.

Chandler & Taylor Company of Indianapolis, Ind., report that they are now working on a complete new line of sawmill machinery which they expect to have ready for the market by early summer. Their standard mill has already been completed. The Heacock patent variable belt feed works will be used on all mills, which will largely increase their output.

L. Schulte & Co. of Philadelphia have let the contract for a new four-story machine shop, 83 x 83 feet, to cost $55,000.

The property of the Chester Twist Drill and Tool Company of Chester, Pa., has been sold at sheriff's sale to satisfy a claim of the Delaware County Trust Company for $25,000. The sale realized $11,891.

The Sullivan Boiler Works, Mansfield, Ohio, have been destroyed by fire at a loss of $10,000.

The Standard Coal Company of Brookwood, Ala., have let a contract to Stein & Schwartz of Philadelphia, Pa., for the erection of a complete coal washing and separating plant at their works.

The Willford & Northway Mfg. Company have commenced the erection of a plant at Jordan, Minn. The main structure will be 276 x 48 feet, two stories high, and the foundry will be 180 x 48 feet. Operations will begin June 1 with 125 hands.

The Campbell Frog Works, at Bucyrus, Ohio, are to be enlarged to keep pace with the increase in business.

Hardware.

Dean & Burt, who have been manufacturing a patent dinner pail at Albany, N. Y., have removed their business to Owego, N. Y. Horace W. Adams, the patentee, who has had charge of the manufactory, returned to Owego also. The business will be continued in the company's plant there.

Bronson Supply Company, Cleveland, Ohio, and 72 Beekman street, New York, report several heavy shipments during the past week of their Never-Break wrought steel cooking utensils and Excelsior planished steel baking and roasting pans, especially to the East and West, though inquiries are referred to as picking up in the South.

William Rose & Bros. of Sharon Hill, Delaware County, Pa., are very busy in the manufacture of their specialties in plasterers' and brick trowels and saddlers' tools, for which they have a steady flow of orders from all parts of the country. Their shipments to the Western States and Pacific Coast have increased lately, and they find their largest market now in St. Louis, Chicago and San Francisco. They also advise us that they have had inquiries for their saddlers' round knives from more than one European country and are sanguine of being able to establish an export trade in that direction. The works of the firm have been considerably improved and enlarged since their migration into the country from their former location in Philadelphia.

TRADE REPORT.

As the result of the Philadelphia failure a number of cargoes of foreign Ore afloat, aggregating about 10,000 tons, have sold at low prices. Among the Ores thus sold were Seriphos, Tafna and Porman, the latter selling as low as 6½¢ a unit. These Ores, although Bessemer, have been purchased by makers of Foundry Iron in Eastern Pennsylvania, and have given them some low-priced stock, helping them to that extent. It looks as though little Lake Ore would go into the Lehigh and Schuylkill valleys this year.

Our monthly blast furnace returns, which we print elsewhere, show a reduction in the weekly capacity running from 193,902 gross tons weekly on March 1 to 185,462 tons on April 1. This reduction of 8440 tons weekly would represent a diminution of output of about 36,000 tons per month, while the increase in the stocks during March was about 56,000 tons. A closer examination reveals some interesting facts, however, as the following table shows:

	March increase in stocks. Tons.	Monthly reduction in capacity. Tons.
Coke	16,000	24,000
Anthracite	18,000	9,000
Charcoal	22,000	4,000
Totals	56,000	36,000

This would indicate that Coke Iron consumption is gaining in production, that the reduction in output is inadequate in Anthracite Pig, and that Charcoal Iron is still piling up fast.

The primary Pig Iron markets, so far as Foundry and Forge grades are concerned, show little change during the week. Chicago and Detroit report a heavier movement in Charcoal Iron, while Pittsburgh notes a weakening tendency in Bessemer Pig, without, however, reporting any business of magnitude.

Philadelphia, under a light trading, shows some irregularity in Billets, and Pittsburgh does not seem to be holding well to the nominal quotations reached when the majority of sellers and buyers had withdrawn.

In manufactured Iron and Steel, the hopes entertained concerning the beginning of spring business have not been realized thus far, although the Pipe trade is showing indications of a revival in Pittsburgh. Plates still rank first as the most sharply contested branch. The Buffalo order was, like the Syracuse business, captured by Pittsburgh after a very sharp struggle. Chicago reports quite a lively movement in Merchant Steel, and notes as an item of special interest that Howe, Brown & Co. have taken an order for tool steel for Mexico, in direct competition with English sellers.

To-day is to settle the question whether the European Copper interests will fall into line with American producers in keeping production within bounds. There have been some purchases of Lead by consumers, while Spelter is better under further export sales. Spot Terne Plates have sold in a more liberal way.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., April 12, 1892.

The market has not been one of any special importance, although the general drift appears to be in the direction of improvement. Prices are steadier, concessions harder to obtain, and work somewhat more abundant. Beyond this there is nothing of a very definite character, and buyers are inclined to wait developments before doing anything beyond covering their known requirements. There are no heavy orders around for anything, the most important having been about 1000 tons Steel Plates, &c., for Buffalo and a somewhat smaller quantity for Syracuse. These orders were closely competed for, but it is understood that Pittsburgh took them both at figures not over 1.90¢. delivered, for Plates and Angles, for the first mentioned, and at little if anything over that for the second. In other directions there is a fairly active movement for small lots, and mills are said to be gaining a little, although there is still plenty of room for almost any amount of business that can be offered. The fact that prices are becoming steadier is considered a favorable feature, and is the first step toward positive improvement, which, however, will need to be confirmed by heavier buying before the trade are convinced of its permanency. Meanwhile, it is quite safe to say that the outcome of the week's business has been favorable and that the immediate outlook is of the same general hopeful character as that of the past few days.

Pig Iron.—The general report is that there is a slightly better demand, but no definite improvement in prices. There is less pressure to sell at concessions, and those who have Iron to offer are usually able to find a market for it at current rates. Large lots might not be taken, but they are not offered in a way to indicate that holders are heavily loaded, hence the market may be said to be on an even keel. There is plenty, of course, and some holders are more anxious to realize than others, but in spite of that a pretty good guess might be given of the price that any special brand might command. In other words, there is a market, and Iron has a price, which could hardly have been said for several weeks past. The reduction in the output, combined with the knowledge that sales were being made below cost, has developed a stronger feeling among holders, and it is presumed will ultimately develop confidence among buyers. Meanwhile, some houses report a very much better demand, especially for foundry purposes, but Mill Irons have not shown buoyancy in proportion with other descriptions, although they are well held at quoted rates, which for the general list are about as follows, for Philadelphia and near-by points, with concessions in proportion for Irons that can be delivered at lower freights, say at Harrisburg, York, Wilmington or Baltimore:

American Scotch, No. 1x	$17.50	@	$18.00
American Scotch, No. 2x	16.00	@	.....
Standard Penna (Lake Ore), No. 1x	16.00	@	16.50
Standard Penna. (Lake Ore), No. 2x	15.00	@	15.50
Standard Penna. (Lake Ore), No. 2 plain	14.50	@	14.75
Lehigh and Schuylkill, No. 1x	15.75	@	16.00
Lehigh and Schuylkill, No. 2x	14.75	@	15.00
Standard Virginia, No. 1x	15.00	@	15.50
Standard Virginia, No. 2x	14.50	@	15.00
Medium Va. and Southern, No. 1x	15.00	@	15.25
Medium Va. and Southern, No. 2x	14.25	@	14.50
Standard Penna. and Virginia Forge	14 00	@	14 50
Ordinary Forge Cinder mixed	13.00	@	13 25
Hot-Blast Charcoal	18 50	@	21.00
Cold-Blast Charcoal	24.00	@	26.00

Muck Bars.—There is little or nothing doing, and although there are sellers at a trifle over $25, delivered, and buyers at

about $24.75, it seems impossible for them to come together.

Ferromanganese.—Sellers at $60 @ $61, duty paid, for 80 %, but buyers show no disposition to take hold unless in small lots for immediate use.

Steel Rails.—Demand of the same general character as noted for several months past. One lot of 10,000 tons was sold recently by the Maryland Steel Company for delivery in Ohio, apart from which only small lots are called for. Prices steady at $30, f.o.b. cars at mill.

Steel Billets.—Market dull and nominal, with very little inquiry for large lots, consumers being pretty well supplied, in some cases very nearly up to midsummer. Prices are said to be firm at $23, Pittsburgh, with equivalent rates at seaboard and adjacent points, but in the absence of sales it is hard to say what the exact position is. One 500-ton lot was sold at $25, f.o.b. cars at mill near Philadelphia, and a few small lots from the West were taken at $25.25 @ $25.50, but the feeling is unsettled, and liable to change either way if any pressure should be developed.

Bar Iron.—Demand does not improve, although mills with an established trade claim to be doing fairly at 1.70¢ @ 1.75¢ for city deliveries, and 1.60¢ @ 1.65¢ at interior points. There is plenty of Iron at less money, but as a rule consumers require a first-class article, so that it is easier to sell a good make at comparatively high figures than other kinds at concessions.

Skelp Iron.—A very limited business is being done at about 1.65¢, delivered, with more sellers than buyers at the price named.

Plates.—Some improvement in demand may be noted, but not as regards prices. The extremely low figures quoted on two or three lots in Western New York seem to have demoralized things worse than ever, and on a good-sized order it is hard to say what figures might be named. An order for about 700 tons heavy Steel Plates for Buffalo was taken (including Angles) at less than 1.9¢, delivered, and on a similar order for Syracuse equally low figures were named. Under these circumstances, while the general demand is better, manufacturers do not see their way clear enough to warrant them in asking more money, so that the usual asking rates are about as follows, with concessions sometimes allowed on special orders:

	Iron	Steel.
Tank Plates	1.80 @ 1.90¢	1.85 @ 1.95¢
Shell		2.10 @ 2.20¢
Flange	2.70 @ 2.90¢	2.40 @ 2.50¢
Fire-Box	3.00 @ 4.00¢	2.70 @ 3.20¢

Structural Material.—Business is not particularly active in this department, although there is a good deal of work in prospect, but it has not come forward as promptly as seemed probable a week or two ago. Some of the mills are running a little short of orders, but in most cases, they have plenty to do for the present, but nothing that extends beyond this or the month following. Prices steady as last quoted, viz: 1.85¢ to 2¢, delivered, for Bridge Plates; 1.9¢ @ 2¢ for Angles, and 2.25¢ @ 2.40¢ for Beams, Channels or Tees.

Sheets.—Mills are doing fairly, but there is nothing urgent, unless at lower prices than manufacturers are inclined to quote. Common Sheets can be had at low prices, but for the best makes there is a good demand, quotations for which are about as follows:

Best Refined, Nos. 14 to 20	2.70¢ @ 2.80¢
Best Refined, Nos. 21 to 24	@ 3.10¢
Best Refined, Nos. 25 to 26	3.20¢ @ 3.25¢
Best Refined, No. 27	3.40¢ @ ....
Best Refined, No. 28	3.50¢ @ ....

Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ¼¢ lower than are here named:

Best Soft Steel, Nos. 14 to 20	3¢ @ 3⅛¢
Best Soft Steel, Nos. 21 to 24	3¼¢ @ ....
Best Soft Steel, Nos. 25 to 26	3¾¢ @ ....
Best Soft Steel, Nos. 27 to 28	4¢ @ ....

Best Bloom Sheets, ¼¢ extra over the above prices.

Best Bloom, Galvanized, discount	@ 67½ %
Common, discount	@ 70 %

Old Material.—Demand slow and uncertain, but in a general way sales are made at about the following quotations, price according to quality and point of delivery: Iron Rails, $20 asked, spot, or $21, delivered; Steel Rails, $16 @ $17, delivered; No. 1 Railroad Scrap, $19 @ $20, Philadelphia, or for deliveries at mills in the interior $19 @ $20, according to distance and quality; $13 @ $14 for No. 2 Light; $13.50 @ $14 for best Machinery Scrap; $13 for ordinary; $13 @ $14 for Wrought Turnings; $9 @ $10 for Cast Borings, and nominally $22 @ $24 for Old Fish Plates, and $16 @ $16.50, delivered, for Old Car Wheels.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, April 13, 1892.

Although the general condition of business is not satisfactory, yet encouraging circumstances are multiplying. The consumption of materials by the agricultural implement trade is beyond all precedent, and those who make a specialty of this branch are in constant receipt of orders. The season contracts made last year have fallen far short of meeting the requirements of these manufacturers. The railroads are buying more freely, and prospects are good for a sustained demand from this source for months to come. The downward course of prices for Iron and Steel seems to have been checked.

Pig Iron.—The feature of the market the past week has been an awakening in Lake Superior Charcoal. Several round lots were sold to Malleable and Car Wheel works and further deals are pending. Large consumers are pretty generally watching the course of the trade very sharply, with the evident purpose of buying when they find anything like a bargain. The purchases thus far made are not regarded as indicating that a general buying movement has set in, because it is rather early in the year, but perhaps they are the more gratifying on that account, as they show that the consumption of Charcoal Iron is surpassing the estimates of those who made season contracts. It would not be surprising, however, in view of fact that so many charcoal furnaces are now out of blast, to find heavy consumers taking hold at an earlier time than usual. Large stocks are held by the makers, but they are in strong hands and the number of sellers is decidedly smaller than for several years past. Our quotations may be shaded a trifle on some brands, but they represent the market pretty fairly. Local Coke Iron is in better demand, and it is apparent that heavy buying will set in as soon as consumers are reasonably certain that bottom has been touched. They find now that they are unable to buy at the figures current a month since, but it will take a little longer to develop the tender plant of confidence into a tree capable of sustaining some burden. Less is now heard of low offers of Southern Coke Iron; our quotations are very close to actual prices. Quotations as follows:

Lake Superior Charcoal	$16.75 @ $17.25
Local Coke Foundry, No. 1	14.75 @ 15.50
Local Coke Foundry, No. 2	14.00 @ 14.50
Local Coke Foundry, No. 3	13.50 @ 14.00
Local Scotch	15.00 @ 16.00
Ohio Strong Softeners	17.00 @ 17.75
Southern Coke, No. 1	15.50 @ 15.75
Southern Coke, No. 2	14.00 @ 14.50
Southern Coke, No. 3	13.25 @ 13.75
Southern, No. 1, Soft	14.00 @ 14.50
Southern, No. 2, Soft	13 25 @ 13.75
Southern Gray Forge	13 25 @ 13.50
Southern Mottled	13.00 @ 13.50
Tennessee Charcoal, No 1	17.50 @ 18.00
Alabama Car Wheel	21.00 @ 23.00
Coke Bessemer	15.75 @ 16 25
Hocking Valley, No. 1	17.00 @ 18.00
Jackson County Silvery	17.25 @ 18.25

Spiegel—Is dull, with $28 still asked for 20 %.

Bar Iron.—Inquiries have not been so good during the past week, but the mills now in operation seem to be well supplied with work and those making a general assortment are exceptionally busy. The small mills are picking up what they can and taking inside prices, but on the whole there is a better feeling in the trade. Soft Steel is in good demand and constantly growing in favor. Bar Iron continues to be quoted at 1.60¢ @ 1.65¢, Chicago, half extras, for usual specifications and soft Steel Bars 1.80¢ @ 1.85¢. Jobbers quote 15¢ ₰ 100 above these prices on Bars from stock.

Structural Shapes.—Beams are in active demand in a retail way now that the building season has fairly opened, and good prices are obtained on lots of this character. Purchases of Bridge material are being more freely made. Quotations on mill shipments are as follows, Chicago delivery: Beams, 2.25¢ @ 2.50¢; Angles, 1.90¢ @ 2¢; Tees, 2.50¢ @ 2.60¢; Universal Plates, 1.90¢ @ 2¢; Sheared Plates, 1.95¢ @ 2¢.

Plates, Tubes, &c.—The local dealers report an excellent demand for Plates, but it is not of a character to interest the mills running mainly to small orders from stock. Dealers quote from stock as follows: Tank Iron, 2.40¢ @ 2.50¢: Tank Steel, 2.30¢ @ 2.40¢; No. 10 to No. 14 Iron or Steel Sheets, 2.40¢ @ 2.50¢; Flange Steel, 2.90¢ @ 3¢; Shell Steel, 2.60¢ @ 2.75¢; Rivets, 4¢ @ 4.25¢; Boiler Tubes 3 inch and larger, 71 %; 2½ inch and less, 55 % off; Tank Steel in mill shipments is quoted 2¢ @ 2.10¢.

Sheets.—Manufacturers' agents are in receipt of numerous inquiries for summer delivery from the jobbing trade and have booked good orders from manufacturing consumers. Care is taken with contracts running past July 1, as the apprehension of a general shut down is widespread. Mill lots of No. 27 common are quoted 2.85¢ @ 2.90¢ from Chicago, and small lots from stock 3.10¢ @ 3.20¢. In Galvanized Iron some choice brands are in good request, but the demand in general is light and prices are weak, quotations running from 70 % to 70 and 5 % for mill lots of Juniata. The fact is noted that some sellers have recently adopted the practice of shipping heavier gauges than ordered, thus making a lower discount than their competitors but realizing higher net prices. This is, of course, only done where there is a chance for the matter escaping detection. Jobbers quote 67½ % on Juniata from stock, with an extra 2½ to best buyers.

Merchant Steel.—Continued orders for cheap Steel are being received from agricultural implement manufacturers. The Gautier Steel department of Cambria Iron Company doubled their sales in March over the corresponding month last year, which was the best spring month in their history up to that time. Other sellers of such Steel have also been well favored with business, and some of them are now busier making excuses for not shipping promptly than in taking new orders. Excellent prospects are seen for the future in this line. Howe, Brown & Co. sold a carload of Tool Steel this week for shipment to Mexico in direct competition with English Steel. Machinery, Spring and Tire Steel are quoted 2¢ @ 2.25¢ in carload lots, according to quality and finish, and Tool Steel 6.25¢ and upward.

Track Supplies. — Local Steel Rail manufacturers are turning out a good product of Rails, and profess to be well satisfied that they will be able to pick up enough orders to keep them going comfortably. They are now looking forward to the usual good volume of business in small orders for renewals, side tracks and short extensions, which develop through the spring and summer months. Quotations are steady at $31 and upward, according to quantity. Fastenings are as follows: Iron or Steel Splice Bars, 1.80¢; Spikes, 2.10¢ @ 2.20¢; Hexagon Nut Track Bolts, 2.65¢ @ 2.75¢.

Old Rails and Wheels.—A sale of Old Iron Rails is reported at about $19.50. This is the only transaction of the week, so far as known. Old Steel Rails are in active again and quoted $13.50 @ $14. Old Car Wheels have sold in a limited way at $15.50 @ $16.

Scrap.—Sales of Wrought have been made by railroads to dealers the past week at very good prices. Consumers are not in the market to any extent. Quotations unchanged, as follows: No. 1 Railroad, $17; No. 1 Forge, $16; No. 1 Mill, $11; Pipes, $11; Cast Borings, $7 @ $7.25; Wrought Turnings, $9.50 @ $9.75; Axle Turnings, $12; Heavy Cast, $11.50; Stove Plate, $9; Malleable Cast, $10; Mixed Steel, gross ton, $10.50 @ $11; Coil Steel, $15; Leaf Steel, $16.

Metals.—Copper is quiet, but firm, carload lots of Lake being held at 12¼¢ @ 12½¢, and casting brands 11¾¢. Spelter is displaying an upward tendency, our quotation of 4.40¢ being probably an inside figure now. As to Pig Lead, brokers report that consumers generally have not large stocks, and if trade in the manufactured article should increase the middle of next month would probably find them nearly barren of Lead. Among the refiners there exists a very firm feeling. Sales here for the week include about 700 tons at prices ranging from 4.10¢ to 4.15¢. The close finds trade quiet, but prices firm at the above figures, according to brand and delivery.

Joseph T. Ryerson & Son of Chicago, the well-known Plate merchants, have completed the extensive additions to their warehouse at 18 to 22 Milwaukee avenue, 47 to 53 North Clinton street. It has long been the boast of this house that they carried by far the largest stock of Plates, Sheets and Boiler Makers' Supplies of any firm in the United States. If this was true before, their claim has been greatly strengthened by the increased storage capacity which has just been secured and which is in active use. Two stories have been built on the old warehouse. Its interior construction has been changed by the substitution of massive cast-iron columns and steel beams for the former wooden frame work, so that the upper stories can safely be loaded with the heaviest stock. Two elevators are now in use. The larger of these is sufficient in size to carry lengthwise the largest Plates now rolled, will handle 3 tons with ease, and is operated by an electric motor. The facilities for receiving and shipping goods are admirable. A driveway extends through the entire building from Milwaukee avenue to Clinton street, another covered way to accommodate two teams has been constructed on the Milwaukee avenue side, and three teams can be loaded or unloaded at one time on the Clinton street front. The firm are now prepared to handle a tonnage far in excess of any previous year's business.

Herbert C. Ayer, successor to John V. Ayer Sons, and at one time very prominent in the Western Iron trade, has resumed business, opening an office for the sale of Iron and Railway Supplies in Room 518, Monadnock Building, corner Jackson and Dearborn streets, Chicago.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building,
PITTSBURGH, April 12, 1892.

When the amount of business transacted is considered, the past week can safely be said to have made a poorer showing than any week since the beginning of the year. There is very little buying doing, and what is done is for immediate wants. The brokers here without exception state that it is next to impossible to do any business, even in the face of the extremely low prices prevailing. There is no confidence in the future, and buyers seem impressed with the idea that they can buy just as cheap, or possibly at lower prices, in the future than they can to-day. The better feeling here ten days or two weeks since, brought about by heavy buying, has completely disappeared, and the market for all kinds of material is as bad, if not worse, than at any time this year. If there were any signs prevailing that would indicate a betterment in the near future the situation would not be so bad, but it is absolutely impossible to see how the market can be improved in the face of the forces that are operating against it. Prices during the past week showed a decline both in raw and finished materials, and a further decline during the present week seems certain. Altogether the situation is deplorable, and one that calls for prompt action in the way of curtailment of production if disaster is to be averted.

Pig Iron.—The heavy buying of raw material during last month has caused a reaction, and we have yet to hear of the first transaction in Pig Iron during April that involved anything like a large amount. As a result of this prices have weakened considerably, especially on Bessemer. The shut-down movement, concerning which so much was said during March, has been a flat failure, and the determination among the furnacemen to hold on and keep in blast is remarkable. From a report of stocks of Pig Iron sent out by the Western Pig Iron Association of this city, under date of April 9, we learn that there were piled up at the various furnaces in the country on April 1 a little over 598,600 tons of Pig Iron. This is an increase of about 20,000 tons over the stock on hand March 1, according to the same report. To say that stocks of Iron all over the country increased but 20,000 tons during March is certainly an extraordinary statement. We have in mind several stacks which have been piling nearly all the Iron they have made for some time past. In a period of depression, such as we are going through now, many furnaces will decline to give stocks, so that it is impossible to state accurately just how rapidly we are piling up Iron. As we stated above, prices have gone off to some extent, and Bessemer was sold in Pittsburgh last week at a shade less than $14.50, delivered at buyer's mill. Gray Forge is also weaker, while Foundry Irons are about holding their own, with little or nothing doing in them. Several furnacemen from the Mahoning Valley were here last week offering Iron at inside quotations, but so far as we are advised no sales were effected. Bessemer Iron can be bought here to-day at $14.50 without difficulty, and there is little moving even at that price. We quote as follows:

Neutral Gray Forge	$12.75 @	$12.90,	cash
White and Mottled	12.50 @	13.00,	"
All-Ore Mill	13.75 @	14.25,	"
No. 1 Foundry	14.75 @	15.00,	"
No. 2 Foundry	14.10 @	14.35,	"
Bessemer Iron	14.50 @	14.60,	"
Warm-Blast Charcoal	18.50 @	20.00,	"
Cold-Blast Charcoal	25.00 @	27.00,	"

We are advised of a sale of Gray Forge, amounting to about 1000 tons, at $12.85, delivered, and a sale of 500 tons of Bessemer at $14.50, delivered, equal deliveries in April and May.

Ferromanganese.—There is no change to note since our report of last week. The several lots of foreign Ferromanganese sold in this market during the past month have not as yet affected the price of domestic, which continues to be quoted at $62.50 and $63. This market for domestic is entirely controlled by one concern.

Soft Steel Billets.—In sympathy with Bessemer Pig, Billets are weaker and there is no difficulty in placing orders at $23. At Wheeling the price is weaker than in Pittsburgh, and it is probable that makers there would shade $23. The heavy buying done last month has caused a reaction, and for the past two weeks buying has been confined exclusively to small lots. We quote at $23 @ $23.25, with the first named price as the ruling figure.

Wire Rods.—The market is weak and reports are going of offers at very low figures. We are not advised of any transactions worthy of mention since our last report. We quote nominally at $34.50, but a desirable order would shade the above price considerably.

Muck Bar.—The demand continues to decline and Muck Bar can be said to be a drug on the market, and all indications point to the fact that the demand will continue to decline as long as Soft Steel can be had so much cheaper. We are advised of a sale, involving about 1000 tons, which brought about $25, delivered at buyer's mill.

Structural Material.—While no specially large orders have been placed since our report of last week, the amount of business booked foots up a very fair tonnage. The outlook for future business is bright, although orders have not come in as early as expected. We have reduced prices slightly on some shapes and quote as follows: Beams and Channels on a basis of 2.10¢ for desirable orders, and 2.20¢ small lots; Angles, 1 85¢ @ 1.90¢; Universal Mill Plates 1.90¢ @ 1.95¢; Tees, 2.50¢; Refined Iron Bars 1.75¢; Steel Bars 1.75¢.

Steel Plates.—The demand continues fairly good, although makers still claim that they could take care of considerably more business than is being offered. It would require a very large tonnage to keep the mills here employed to their full capacity. We quote as follows: Fire Box, 3.75¢ @ 4.10¢; Flange, 2.25¢ @ 2.30¢; Shell, 2.10¢; Tank, 1.90¢.

Nails.—The improved demand for Cut Steel Nails noted in our report of last week continues, and the Cut Nail trade as regards business going is in a better condition than for some time past. Prices, however, do not as yet show any inclination to advance and we continue our quotation of $1.50 for 30¢ averages in Wheeling district. The Wire Nail makers met in Cleveland on Wednesday, the 6th inst., and adopted a new card, which we print in full elsewhere in this issue. This new card supersedes all other cards, and as has always been the case heretofore, the adoption of it has slightly unsettled the market Offers have already been made at $1.65 based on the new card. We quote at $1.65 and $1.70 in carload lots and $1.75 in smaller quantities.

Wrought-Iron Pipe.—The advent of good weather has had a beneficial effect on the market, and a considerable demand within the last week or two is reported. Makers are encouraged by the improved situation of affairs and confidently believe that the long period of depression in the Pipe and Tube trade is passing away and a better state of things is near at hand. Discounts are unchanged, and are as fol-

lows: Butt, Black, 57½ %; Galvanized, 47½ %; Lap, Black, 67½ %; Galvanized, 55 %; Boiler Tubes, up to 2¾ inches, inclusive, 55 %; 3 inches and larger, 65 %; Casing, 55 %. Inserted Joint Casing, 50 %. These discounts continue to be shaded considerably.

Steel Rails.—There is no change to note in the market since our report of last week. Inquiries are very fair, but no large blocks have been placed for the past week or two. Prices are unchanged at $30, f.o.b. at mills.

Manufactured Iron.—In the finished Iron trade the situation is much the same as noted last week. Rumors are going that another non-union mill in the Pittsburgh district has made a reduction in the wages of their puddlers. The firm in question refuse to either deny or affirm the report. Complaints are made that the Bar mills in the valleys have booked orders at extremely low prices for Bars made from Old Rails and Scrap, and that this is having a depressing effect on the market. It is said that orders have been taken as low as 1.45¢ at mill. We quote as follows: No. 1 Bars at 1.60¢, 60 days, 2 % off for cash. Bars made from Old Rails at 1.47½¢ @ 1.50¢; Steel Sheared Plates at 1.90¢ @ 2¢; Iron Sheared Plates at 1.80¢ @ 1.90¢; No. 2 Sheet at 2.50¢ @ 2.60¢, 60 days, 2 % off for cash. Skelp Iron is unchanged at 1.60¢ for Grooved and 1.80¢ for Sheared, four months, 2 % off for cash. A large order for Grooved Skelp Iron was taken last week at 1.57½¢, four months.

Barb Wire.—It has been some time since the mills were as fully employed as at present, and prices are being fully maintained. Makers state that if the present activity continues an advance in prices, both Galvanized and Painted, will surely take place. We quote as follows: $2.25 @ $2.35 for Painted, and $2.70 @ $2.80 for Galvanized, f.o.b. at factory, the lower prices named being for carload lots.

Old Rails.—There is no business being done, and prices are so badly demoralized that it is next to impossible to make quotations that will correctly represent the market. We quote short lengths under 6 feet which do not require sorting at $16.50 @ $16.75. Miscellaneous lengths are held at $16, and long lengths $16.50. Old Iron Rails have gone off considerably, and in the absence of business may be quoted at $21, delivered in the Mahoning Valley.

Railway Track Supplies.—A large amount of business is going and mills making Rail Fastenings have about all they can do. We quote as follows: Spikes of standard size, 2.15¢, 30 days; Iron Splice Bars, standard sections, 1.75¢ @ 1.80¢; Steel Splice Bars, 1.80¢ @ 1.90¢; Track Bolts, 2.70¢ with Square and 2.80¢ for Hexagon Nuts.

Scrap Iron.—A little business was done last week, but dealers state that trade is far below what it should be, in view of the low prices ruling. We quote as follows: No. 1 Railroad Wrought Scrap, $17.50 @ $17.65 ℔ net ton; Cast Scrap, $12.50 @ $12.75 ℔ gross ton; Steel Rail and Bloom Ends, $17 @ $17.25; Cast-Iron Borings, $9.50 ℔ gross ton; Mixed Country Steel, $14 ℔ gross ton.

(By Telegraph.)

A meeting of the Association of Iron and Steel Sheet Manufacturers was held at the Monongahela House, Pittsburgh, Tuesday, the 12th inst. The meeting was very largely attended, about 30 concerns being represented in person. J. G. Battelle of Piqua, Ohio, chairman of the association, presided, and W. C. Cronemeyer of the United States Iron and Tin Plate Mfg. Company, Demmler, Pa., was secretary. At a previous meeting of this association, held in Pittsburgh, on January 26 last, four committees were appointed representing Tin Plate mills, Sheet Bar mills, Sheet mills and Fire Bed mills. These committees were appointed for the purpose of drawing up wages scale to govern wages paid in different departments.

At the meeting held yesterday these committees presented to the association the scales they had formulated, and they were adopted. These scales will be used in conference with the Amalgamated Association in June next, when the wages scale governing wages in rolling mills west of the Allegheny Mountains will be arranged. We are advised that the scales as presented yesterday do not differ materially from those now in force, but the object has been to correct some discrepancies which have crept in, and which affect manufacturers and workmen alike. These scales will be presented by the different mills to the sub-lodges of the Amalgamated Association at an early date, in order to govern the sub-lodges in their action looking to the formulating of a scale to be presented to the convention of the Amalgamated Association in June next. An announcement was also made that definite arrangements had been concluded with John Jarrett, United States Consul at Birmingham, England, by which that gentleman will assume the position of secretary of the association. Mr. Jarrett will arrive in Pittsburgh early in May and will take charge at once. Negotiations are now in progress looking to the merging into one body of the Association of Iron and Steel Sheet Manufacturers, the National Association of Galvanized Sheet Manufacturers and the Tinned-Plate Manufacturers' Association of the United States. This association when organized will be a powerful one, and is expected to be of considerable benefit to the trade. A general meeting of the above three organizations will be held in Pittsburgh on Wednesday, June 10 next, at which it is expected the consolidation will take place. Prices were not touched upon in any way, and no other action of importance was taken.

The offices of the Carrie Furnace Company, operating the Carrie Furnaces at Rankin, Pa., have been removed from Rooms 608–609, Penn Building, Pittsburgh, Pa., to Rooms 603–6, German National Bank Building, in that city.

Arthur Holland, manager of Naylor & Co., Iron and Steel factors, Lewis Block, Pittsburgh, Pa., sailed for Europe on Wednesday, the 13th inst. Mr. Holland will remain abroad for two months and will combine business with pleasure.

The Pittsburgh Reduction Company of Pittsburgh, Pa., have removed from Room 59, 95 Fifth avenue, to 116 Water street, where a storeroom of Aluminum Sheet, Wire and Ingots, will hereafter be kept.

Crocker Brothers, 32 Cliff street, have been appointed sole agents for the sale of "Poughkeepsie" Iron, made by the Poughkeepsie Iron Company of Poughkeepsie, N. Y.

St. Louis.

Office of *The Iron Age*,
Bank of Commerce Building,
St. Louis, April 11, 1892.

Pig Iron.—There is not much change to note in this connection. The volume of business is steady, but shows no material increase over preceding weeks. Furnacemen continue to seek orders for delivery extending over a period of from 60 to 90 days, but are apathetic regarding deliveries for a longer period. The restriction in production is having a beneficial effect, and while prices are not quotably stronger there is a much better tone to the market, and consumers are beginning to ask for prices with a view toward purchasing. The course of the Pig-Iron market is and has been a puzzle to all those who give it any attention whatever. Nearly every concern who use Iron in any of its different forms report an unusually heavy demand with bright prospects of a continuance of the same for an indefinite period. In the face of these favorable conditions prices refuse to advance, and it has been a matter of surprise for the past few weeks that they have remained steady. Consumers have adopted the policy of buying in small quantities as their requirements demand, and under the circumstances it would seem that this is the safe policy to adopt. It does not look reasonable for prices to go any lower, but as the matter was viewed in the same light three months since, and a lower range of prices afterward prevailed, it is difficult at this time to judge with any degree of certainty. Prices are fairly steady as quoted herewith, and are for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$14 25 @ $14.50
Southern Coke, No. 2 Foundry,	13.50 @ 14 00
Southern Coke, No. 3 Foundry,	12 75 @ 13 25
Gray Forge	12.50 @ 12 75
Southern Charcoal, No. 1 Foundry	16 50 @ 17.00
Southern Charcoal, No. 2 Foundry	15 75 @ 16.25
Missouri Charcoal, No. 1 Foundry	14 75 @ 15.25
Missouri Charcoal, No. 2 Foundry	14 25 @ 14 50
Ohio Softeners	17 25 @ 17.50

Bar Iron.—A good trade is enjoyed by the various mills, but prices are weak and inclined to go lower. Some low prices have been made during the week under review, and the market is not as firm as last noted. Jobbers are buying in limited quantities, at less than they could two weeks since. The outlook is not particularly encouraging. We quote as follows for car lots at East St. Louis, 1.60¢, half extras. Lots from store are quotable at 1.65¢ to 1.70¢, according to quantity.

Barb Wire.—Notwithstanding the immense business handled in this commodity, prices continue to grow weaker daily. The price for car lots of Painted is ostensibly $2.50, but this figure has been shaded somewhat during the past week. Galvanized is quoted at 45¢ ℔ cwt. additional.

Wire Nails.—The Wire-Nail market is in a very unsettled condition. Prices are reported to have been shaded in some cases to a point that means an absolute loss. The base price is $2 ℔ keg for less than carload quantities, and 10¢ ℔ cwt. less for carload lots. At the recent meeting of the Wire-Nail manufacturers a new list of extras was adopted, which went into effect to-day, 11th inst. The new list advances the extras on common Fence and Shingle Nails 10¢ on sizes 6d to 16d inclusive, and an advance of 5¢ from 20d to 40d inclusive; 4d, 5d and 50d remain unchanged. The balance of the list, with but one or two exceptions, have been reduced from 5¢ to 1.20¢. The finer sizes have felt the effect of the reduction most. It is supposed that the inroads made into the trade of the mills on the finer sizes by

the Pin manufacturers compelled them to make the changes in the list above referred to.

By Telegraph.

Pig Lead.—The market continues in the firm condition noted last week; offerings are made at 4¢ @ 5¢ and sales have been made at this figure; the supply of spot Lead does not decrease any, which acts as a wet blanket on prices. The demand begins to show some snap, however, and while no large advance is anticipated, a gradual improvement is looked for. A sale of ten cars of Chemical, at East St. Louis, was made yesterday at 4.01¢.

Spelter.—The demand is improving somewhat and the market has a healthy appearance; sales are made at 4.30¢, while sellers hold out for 4.35¢. The demand from galvanizers and brass manufacturers is improving, which accounts for the firm position which prices at present occupy.

Cleveland.

CLEVELAND, Ohio, April 11, 1892.

Iron Ore.—Reports of Ore having been sold at last season's prices are still in circulation, although many dealers maintain that nothing at all is being done. Navigation has not opened—at least not as far up the lakes as the nearest Ore port—and is not likely to for several days. There is nothing in the present condition of the Iron Ore market to induce vesselmen to enter into a mild scramble for the Ore carrying business unless it be to bring down the Ore already sold; not a very important factor in the total sales anticipated for 1892. If any Ore has been sold during the past week—and it is probable that some small amounts have been let go—the prices are so nearly the quotations of 1891 that there need be little haggling over the figures. The purchaser wild enough to rush into the market just now and pay the prices prevailing when the market was suddenly opened would be considered insane. It is quite probable, although dealers do not admit it, that Ore is being sold, not in large amounts, but still of sufficient importance to attract attention. The prices paid are, however, rigorously guarded. Shipments to the furnaces are still far out of proportion to those of last year. Over 31,000 tons were sent on from Cleveland last week, and about 100,000 tons from all lower lake ports. For the same week last year the shipments from Cleveland were 8000 tons and from Lake Erie ports not over 20,000 tons. This activity, if continued, will virtually clear the docks before the first shipment of new Ore for 1892 is unloaded—something that has not occurred for many years. The amount of new Ore sold up to the present time is not far from 3,500,000 tons. The amount may reach 4,000,000 tons, but this seems scarcely probable. The slightest improvement in the condition of the Pig Iron trade would infuse new life into the market at once.

Pig Iron.—Only a very small amount of business is being done, although dealers do not seem in any alarming degree discouraged. Efforts to reduce production are still in progress and several furnaces will go out of blast when the present supply of raw material is exhausted. The following are the nominal quotations, but do not indicate the prices for which Ore may actually be bought:

Nos. 1 to 6 Lake Superior Charcoal	$17.50 @ $18.00
Nos. 1, 2 and 3 Bessemer, per ton.	15.00 @ 15.50
No. 1 Strong Foundry, per ton..	15.50 @ 16.00
No. 2 Strong Foundry, per ton..	14.50 @ 15.00
No. 1 American Scotch, per ton.	..... @ 15.60
No. 2 American Scotch, per ton	.....@ 14.60
No. 1 Soft Silvery, per ton.....	15.50 @ 16.50
Mahoning and Shenango Valley Neutral Mill Irons, per ton....	13.50 @ 14.00
Mahoning and Shenango Valley Red Short Mills, per ton.....	14.00 @ 14.50

Old Rails.—The market is weak and prices for Old Americans have declined to $20.50 @ $21.

Nails.—The demand is fair and prices remain as given last week—$1.65 for Steel Cut Nails and $1.80 for Steel Wire.

Manufactured Iron.—Common Bar is still quoted at 1.60¢ @ 1.65¢, with a fair demand.

Barb Wire.—The market is active and prices firm.

Scrap.—Not much is being done, prices being fixed on the basis of $18.25 @ $18.75 for No. 1 Railroad Wrought and $13 for Cast Scrap.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, April 13, 1892.

Pig Iron.—There are no features of special encouragement to the sellers of Pig Iron, unless it be that prices are so low that any change must be an improvement, but buyers do not seem to recognize this, and buying during the past week has been even smaller than for either of the previous three weeks. The melting of Pig Iron is large by the car and repair shops, the agricultural works and the iron pipe works, but has fallen off in some other lines, and taken as a whole it cannot be considered. Any one who wants Iron has no difficulty in buying for present delivery at inside quotations, but for long forward delivery a little more is asked. There appears to be a growing sentiment of confidence in the future of the Iron trade, based in part on the better foreign demand for American securities, which seem likely to give a substantial basis for an enlarged demand for railroad material and for iron pipe. This is not expected to have an immediate favorable effect upon the Pig Iron market, but should develop more trade before the summer is over. The reports from the leading Southern furnaces indicate that the shipments of Pig Iron exceed the current production, and that there is, therefore, a tendency toward a reduction in stocks. Quotations unchanged, as follows:

Foundry.

Southern Coke, No. 1.....	$13.50 @ $14.00
Southern Coke, No. 2.....	13.00 @ 13.25
Southern Coke, No. 3.....	12.25 @ 12.50
Ohio Soft Stone Coal, No. 1.....	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2	15.00 @ 15.50
Mahoning and Shenango Valley...	17.00 @ 17.50
Hanging Rock Charcoal, No. 1....	19.75 @ 20.00
Hanging Rock Charcoal, No. 2....	19.00 @ 20.00
Tennessee and Alabama Charcoal, No. 1...	16.50 @ 17.00
Tennessee and Alabama Charcoal, No. 2.....	15.50 @ 16.00

Forge.

Gray Forge	11.75 @ 12.00
Mottled Neutral Coke.....	11.50 @ 11.75

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	19.25 @ 19.50
Lake Superior Car Wheel and Malleable.....	18.75 @ 19.00

Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., under date of April 11, 1892, write: We are pleased to be able to report a very much more active market for Lake Superior Charcoal Iron even than we reported last week, when we then noted that the activity had commenced. It has been accelerated, and sales aggregating perhaps 10,000 tons have been made for delivery after the opening of navigation. The buyers have fully realized that bottom has been reached, and no concessions below regular market figures have been made that we have knowledge of, and business, then, can be said to be fairly satisfactory. With the large stocks on hand at the furnaces the fact of the market being fully maintained, notwithstanding the general weakness all about it, is certainly gratifying. It has been said, and more or less truly, that Lake Superior Charcoal-Iron makers are not figuring on what they can make, but on the least they can lose. There have been, however, certain standard brands of Iron that have been placed on a sound basis of price and will not be changed until they can be advanced. The fact of navigation opening earlier than was expected on the lakes, will be a help to the upper lake furnaces, and in fact all furnaces shipping by water, in getting better rates than they had expected. A few transactions, which are not noteworthy, however, as far as size is concerned, were made for Southern and Northern Coke Irons. These were generally in lots from carloads to 50 tons, and at existing figures. The market certainly looks brighter for Lake Superior Charcoal and no worse for Coke Irons than it has for some time past, and is quotable to-day as follows:

Lake Superior Charcoal, all numbers	$16.50 @ $17.50
Lake Superior Coke, Bessemer...	16.00 @ 17.00
Lake Superior Coke Foundry, all ore.....	16.50 @ 17.50
Ohio Blackband (40 per cent.)...	17.00 @ 17.50
Southern No. 2.....	15.00 @ 15.50
Southern Gray Forge.....	13.25 @ 13.75
Jackson County (Ohio) Silvery.	17.75 @ 18.25

New York.

Office of *The Iron Age*, 96-102 Reade street, NEW YORK, April 13, 1892.

Pig Iron.—The market is quiet, although some of the leading sellers report that Iron is moving off quite well. The principal Allentown makers are holding at figures higher than the prices made by some of the smaller Southern concerns to force the sale of their product. We quote Northern brands, $15.75 @ $16 for No. 1; $14 75 @ $15 for No. 2, and $13.75 @ $14 for Gray Forge, tidewater. Southern Iron sells at $15 @ $15.50 for No. 1; $14.25 @ $14.50 for No. 2 and No. 1 Soft; $13.50 @ $14 for No. 2 Soft; $13 @ $13.50 for Gray Forge.

Ferromanganese and Spiegeleisen.—Very little business is reported in Foreign Ferro, which remains at $61 @ $61.50. Reports of prices made on domestic at points west of the Rocky Mountains indicate a determination not to allow any further sales of foreign in that territory. Spiegeleisen is lifeless at $23 @ $23.50 for 10 to 12 %, and $26.50 @ $27 for 20 %.

Billets and Rods.—It is reported that the order for a New England consumer referred to has been placed in the West. We quote domestic Billets $25.50 @ $26, tidewater, and Rods $35.50 @ $36. The Lackawanna Company are now making Billets.

Steel Rails.—Aside from a lot of 3500 tons, no business of any consequence is reported. The market is surprisingly dull. At this time of the year orders should be placed for spring and early summer delivery and yet little work is coming forward. We quote $30 at Eastern mill.

Manufactured Iron and Steel.—Very little new Iron has come into the market during the past week, and it is not until next month that much movement in local architectural circles is expected. The Buffalo Plate order of 1000 tons was taken by Pittsburgh. Small lots of Beams are selling at 2.40¢ @ 2.45¢, while round lots are available at 2.20¢ @ 2.30¢. We quote: Angles, 1.9¢ @ 2.10¢; Sheared Plates, 1.85¢ @ 2.25¢; Tees, 2.40¢ @ 2.75¢, and Beams, 2.30¢ @ 2.80¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢; Steel Plates are

1.85¢ @ 1.95¢ for Tank; 2.05¢ @ 2.25¢ for Shell; 2.35¢ @ 2.65¢ for Flange; 2.55¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock. Bars are 1.7¢ @ 1.9¢, on dock. Scrap Axles are quotable at 2¢ @ 2.10¢, delivered. Steel Axles, 2¢ @ 2.1¢, and Links and Pins, 2.05¢ @ 2.20¢; Steel Hoops, 1.9¢ @ 2¢, delivered.

Merchant Steel.—We quote: Hot-Rolled Shafting, 1.90¢ @ 2¢; Machinery, 1.90¢ @ 2.10¢; Tire, 2¢ @ 2.25¢, Toe Calk, 2.20¢ @ 2.35¢, and Tool Steel, 5½¢ @ 6½¢, delivered.

Track Material.—We quote Spikes 1.95¢ @ 2¢, Angles remaining nominally 1.65¢ @ 1.70¢, and Bolts, 2.60¢ @ 2.5¢, delivered.

Metal Market.

Copper.—Beyond a few small sales reported from second hands at 11.80¢ and 11.85¢ there has been scarcely any business in Lake Superior Ingot. The mining companies are offering no Copper for prompt or near future delivery, and appear indifferent to all bids of less than 12¢. Local representatives assert that they are not in a position to fill many orders requiring early delivery, since shipments on old contracts absorb the bulk of current output, and it is claimed also that consumption is going on at a rate that causes a confident feeling as to the future—that is to say, the leading producers are not only well satisfied with actual results thus far, but would have it appear that whether any international agreement to regulate production is consummated, they feel confident that the market will take care of itself, making a strong point of information to the effect that there is hardly any chance of increased production this year, except perhaps by the Boston and Montana Company. The fact that large consumers have bought very little Copper during the past two weeks, although actively employed, is also looked upon as being a strong feature, more particularly as bearing upon probable outlet during the next two or three months. In common Casting Copper no change has occurred. As a popular quotation 11½¢ is still named, but there have been sellers at a fraction less, and that, too, in the face of reported scarcity of the metal in some quarters.

Pig Tin.—In the face of quite heavy arrivals here and larger stocks than are usually carried, prices have been given good support. This, however, is not so much the result of the consumptive movement as to the outcome of maneuverings of a certain interest acting under instructions from London headquarters. Outside holdings seem to be taken care of when let go at "a little under the market," and London prices are so nicely adjusted to circumstances that more or less Tin is worked off into the channels of consumption on this side of the Atlantic at about the same prices that figure in local speculative dealings, thus relieving the burden in a certain degree. Trade talk has it that more or less Tin is being accumulated here to avoid the duty prescribed in the McKinley tariff bill; but, originating as it does in the inner speculative circles, that talk is looked upon as being engaged in for effect. Current quotations on Straits are 20¢ for 10-ton lots and 20.10¢ @ 20.20¢ for jobbing quantities. Banca is about 20¾¢ and English L. & F. 20½¢, out of store.

Pig Lead.—The market has ruled very firm at 4½¢ on actual sale (not 4½¢ as an error of the types made it read last week), fully 1500 tons, it is reported, having changed hands for prompt and near future delivery. The purchases are understood to have been almost wholly by consumers. At the moment open bids of over 4.22½¢ seem to be the exception, but there were signs of a tendency in some quarters to negotiate at 4½¢ while sellers seem reluctant to go below 4.27½¢ @ 4.30¢, as to delivery, in view of the good business effected of late and favorable indications for liberal consumption in the near future.

Spelter.—There has been a further advance in prices of Western Spelter and the market is quite strong. The improvement is attributed chiefly to additional purchases for export account, involving about 300 tons at 4¾¢, in East St. Louis, but rather better home trade has helped the market in some degree. Possibly purchases may yet be made on the basis of 4.65¢ here, which is slightly above the parity of prices on last export sales, but offering at less than 4.70¢ is the exception, and for some brands 4¾¢ is named as bottom price. Production is liberal, and, while home consumption has improved somewhat latterly, additional export movement is apparently essential to maintaining present prices.

Antimony.—The market has undergone no important change. Business continues to be of routine character and is chiefly at old prices. Current quotations are 10¾¢ for Hallett's, 12½¢ for LX and 14½¢ for Cookson's, and 13¢ for "Crown" brand.

Tin Plate.—There has been more doing in Terne Plates on the spot, and, as stocks here are cut into, prices harden more or less. Charcoals move off slowly, however, and barely hold their own, while full-weight Cokes have been sold quietly at prices below those generally quoted. For future delivery there has been more business, prompted in part by exceptionally low rates of ocean freight, but the business in that way is without visible effect upon the general market, since interest centered on light-weight Cokes secured at low prices in the primary market. We quote as follows for full weights: Coke Tins—Penlan grade, IC, 14 x 20, $5.25; J. B. grade, do., $5.35; Bessemer do., $5.30; Siemens Steel, $5.37½. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75 @ $5.80; IX basis, $6.80. IC Charcoals—Melyn grade, ½ X, $6.40; for each additional X add $1.50; Allaway grade, $5.75; Grange grade, $5.85; for each additional X add $1.20, Charcoal Ternes — Worcester, 14 x 20, $5.75; do., 20 x 28, $11.35; M. F., 14 x 20, $7.37½; do., 20 x 28, $14.75; Dean, 14 x 20, scarce; do., 20 x 28, $10.80; D. R. D. grade, 14 x 20, $5.35; do., 20 x 28, $10.40; Mansel, 14 x 20, scarce; do., 20 x 28, $10 50; Alyn, 14 x 20, $5.40; do., 20 x 28, $10.60; Dyffryn, 14 x 20, $5.65; do., 20 x 28, $10.90. Wasters—S. T. P. grade, 14 x 20, scarce; do., 20 x 28, $10; Abercarne grade, 14 x 20, $5; do., 20 x 28, $9.80.

Coal Market.

Anthracite Coal prices remain precisely as a week ago, with a dull trade. Free-Burning White Ash, f.o.b. at New York shipping ports, is selling as follows: Broken and Chestnut, $3.65; Egg, $3.75, and Stove, $3.90; but Chestnut can be bought as low as $3.25, f.o.b. The opening of navigation on the lakes is expected to impart a new stimulus. Production for the past week, 651,000 tons; for year, 4,800,000 tons, against 5,004,276 tons for same time last year. The Reading tonnage for the week was 225,000 tons, and the Pennsylvania Coal tonnage 246,168 tons.

The answer of the Reading Company in the suit of Matthias H. Arnot in the Lycoming County (Pa.) courts sets forth fully the defense of the Reading Company as to the allegation that the leases of the Lehigh Valley and Jersey Central companies violated the Constitution of the Commonwealth. The answer admits that the leases were made, but avers as to the Jersey Central lease that the Lehigh and Susquehanna Railroad has been leased and under the control of the New Jersey Central since 1871. The Jersey Central lease was not made to the Reading Company, but to the Port Reading Railroad Company, a New Jersey corporation which is not owned or controlled by the Reading Company, "nor was the same ever held or did it ever belong to this defendant," and that the allegation that the Lehigh and Susquehanna is a parallel and competing road with the Lehigh Valley is irrelevant. As to the Lehigh Valley, the lease to the Reading Company is admitted, but it is denied that the road is a parallel or competing line with the Reading in the meaning of the Constitution.

That the Delaware and Hudson Canal Company will be in accord with the New York Central and the Philadelphia and Reading new Coal deal now seems almost certain. The Vanderbilts have secured enough Delaware and Hudson holdings to insure harmonious action and at the same time to elect, May 8, at least six new directors who are friendly to the coal combination out of the board of 13.

The Stanton colliery of the Lehigh and Wilkesbarre Coal Company, at Wilkesbarre, has resumed operations after two years' idleness.

The Mosier breaker of the Newton Coal Mining Company, in Highstownborough, was destroyed by fire 8th inst., with the engine and boiler house. The loss is about $50,000. The plant has been idle since July last.

President McLeod announced the appointment of Joseph S. Harris as vice-president of the Coal and Iron Company. Mr. Harris was formerly vice-president of the Central Railroad of New Jersey, and is president of the Lehigh Coal and Navigation Company.

William B. Gallagher, chief of the marine Coal department of the Reading Railroad Company, died 8th inst., aged 61 years.

The resignation of Vice-President Henry S. Grove of the Colorado Coal and Iron Company has been accepted.

Vienna Hall, on Lexington avenue and Fifty-eighth street, was purchased for $100,000 by the New York Retail Coal Exchange, who will build on the site.

The partial or entire suspension of several collieries in Pennsylvania tends to keep the supply down to the demand. The Maple Hill colliery of the Philadelphia and Reading Coal and Iron Company, which has been in process of opening for the past two years, was successfully started on Monday. This colliery promises to be one of the largest producers in the region.

Financial.

One of the pleasing features in the business situation is the renewed buying of American securities on London account—larger in amount than before for several weeks—and consequent weakness in sterling exchange, indicating a lessened probability of good exports and increasing confidence in the financial future. The quietus recently received by silver agitators in Congress might be assigned as a substantial reason for the change. Another feature is the opening of the spring navigation on the lakes, the Straits of Mackinaw being now clear of ice, and steamers at all the lake ports will speedily be on the move, with large cargees of grain and ore. One consequence may be a demoralization of railroad rates under the renewal of such formidable competition. With regard to the steady fall

in silver from $1.17 an ounce to 85¢ within 18 months, it will be observed that much disturbance is taking place in Indian trade, the rupee having declined 1¼d. within a year. As the Indian Government remits $85,000,000 to London in the year, this depreciation is a serious matter. In the New York market wheat is again on the downward turn, carrying with it in the decline breadstuffs and corn. May wheat, which closed on Saturday at 95⅛¢ ℔ bushel, dropped to 91⅞¢, and July dropped from 94¢ to 90⅛¢. The Government report, which shows an estimated increase of 150,000 bushels in the visible supply, was the chief factor in the bear movement. The aggregate Northwestern wheat stock is given at 29,524,748 bushels, or 882,078 less than last Monday. A year ago the stock was 19,938,000 bushels. The latest Western advices are that farmers, on account of low prices, are more inclined to hold their grain, carrying over their surplus into 1893, so growers and consumers are getting further apart, threatening to arrest the forward movement.

The stock market sharply advanced early in the week, mainly on a revival of the report, which is now apparently confirmed, that an alliance of the Delaware and Hudson with the New York Central system was contemplated. A rise in other coal shares and a recovery in New England followed. The tone was strong until Friday afternoon, and the feature on that day was an important advance in all the industrial stocks, in Manhattan and in Western Union. On Saturday these stocks were the strongest, but the tone for the other properties was heavy and the market was irregular at the close. On Monday large purchases of Union Pacific, St. Paul, Erie and a few other favorites on London account imparted much strength, but liberal selling by traders brought about reaction, New England breaking down, and there was much irregularity. Later there was a rise in National Cordage, Sugar Refiners and in railroad stocks, including the coal shares, the market closing firm. One feature of the week was a fall in bar silver in London to 39¼d. per ounce, but it reacted to 39⅜d. United States bonds were firm at the following quotations:

U. S. 4½s, 1891, extended	100
U. S. 4s, 1907, registered	116
U. S. 4s, 1907, coupon	116½
U. S. currency 6s	109

The principal money markets of the world would appear to be congested as seldom before. The Bank of England rate was reduced to 2½ %, and must have gone lower to correspond with quotations in the open market Capitalists on either side of the Atlantic have unusual difficulty in employing surplus funds. In this market time contracts on good collateral are freely offered at 2½ % for 30 days, 3 for 60 to 90 days, 3½ for four to five months, and 4 for six to seven months. There is a larger supply of commercial paper offering than there was a month ago, but the demand is so urgent that there is no accumulation of names. No improvement in rates is looked for before the autumn months. The only important changes in the weekly statement of the Associated Banks were an expansion in loans of $1,150,650, and a decrease in legal tenders of $2,279,800. The loss in reserve, which was $2,177,750, reduced the surplus held in excess of legal requirements to $15,839,200.

Our foreign trade is in good shape. The imports at New York during March make the unprecedented total for the month $58,242,246, the gain being entirely in free goods, the items of sugar and coffee alone amounting to about $23,000,000, and for the last nine months, if specie be included, the aggregate is $435,417,472, the largest total on record for any corresponding months. Deducting the $38,685,937 in specie the total is a little below that for the same period last year. Turning now to the exports, the shipments from New York in March amounted to $41,050,998, showing a gain of over $4,000,000 in produce and merchandise. Notwithstanding this large gain in produce exports of specie show a slight increase. The balance of trade for eight months to March 1, for the entire country, is $193,000,000, against less than $88,000,000 for the same time in 1891.

Louisville.

LOUISVILLE, KY., April 11, 1892.

There has been but little selling during the week and in most instances the transactions were offers for prompt shipment and spot cash. For shipments during four to six months, prices have been on basis of $9, furnace, for Gray Forge; for delivery running from July to January the same price has been offered, but sellers have generally demanded $9.25. There have been a few transactions in which special sales have been as low as $8.75, furnace, for Gray Forge. There are many rumors afloat in regard to prices, but they have generally been found not true, and to have arisen from sales of furnaces geographically situated so that at a good price they could effect a transaction that to others would mean loss, and it has been reported from these few instances that the entire market was upon the same basis largely. Several furnaces have gone out of blast, but at the same time the number has not been as large as was expected. In the South the Embreeville Furnace went in blast on the 30th ult., and it is expected that the Big Stone Gap Furnace will blow in within the next week. We quote for cash, f.o.b. cars, Louiville:

Southern Coke, No. 1 Foundry	$13.75 @ $14.25
Southern Coke, No. 2 Foundry	12.75 @ 13.25
Southern Coke, No. 3 Foundry	12.00 @ 12.50
Southern Coke, Gray Forge	11.50 @ 12.00
Southern Charcoal, No. 1 Foundry	15.75 @ 16.75
Southern Car Wheel, standard brands	18.00 @ 19.00

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, April 13, 1892.

Very little change has taken place in the Pig Iron warrant market and dealings are still on a limited scale despite continued withdrawals of stock from store and limited production. The latter influences are apparently offset by general trade depression. Inside holders of warrants are evidently awaiting a further depletion of stocks before engaging in extensive operations. Outsiders still hold aloof. Exports of Pig Iron last month were 57,000 tons, against 55,000 tons in March, 1891. There are now only 78 Scotch and eight Cleveland furnaces blowing. Late trading in warrants was at 41/ for Scotch, 37/9½ for Cleveland and 47/2 for Hematite. Stocks in Connal's stores now include 482,000 tons Scotch and 129,000 tons Cleveland.

Pig Tin has been firm, with cash lots in good request, but very little outside speculative interest. The general situation is about the same as it was last week.

Prices for Merchant Copper receded early in the week to £45. 6/3, but have since improved under free buying, believed to have been in good part for American account. Dividends on mining shares are announced as follows: Rio Tinto, 10 %; Tharsis, 12 %; Mason-Barry, 1 %; small dividend on the latter due to expense of reconstruction.

For Tin Plate there has been a brisk inquiry, but the proportion of business was small, owing to difference in buyers' and sellers' views. Exports last month 36,000 tons, against 47,000 tons in March, 1891. The quantity sent to the United States was 23,000 tons and 38,000 tons respectively. Stocks at shipping ports show a further increase. Work is soon to be resumed at the Treforest mills.

Scotch Pig Iron.—Prices for some brands are a shade higher, but business is still on a moderate scale.

No. 1 Coltness,	f.o.b. Glasgow		53/6
No. 1 Summerlee,	"	"	52/
No. 1 Gartsherrie,	"	"	51/
No. 1 Langloan,	"	"	52/
No. 1 Carnbroe,	"	"	44/
No. 1 Shotts	"	at Leith	52/6
No. 1 Glengarnock,	"	Ardrossan	50/6
No. 1 Dalmellington,	"	"	48/
No. 1 Eglinton,	"	"	47/

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

Cleveland Pig.—Very little change in the demand, but moderate output steadies values. Makers quote at 38/ for No. 3, f.o.b. Middlesborough.

Bessemer Pig. — The demand runs about as heretofore, and prices are steady at 48/6 @ 49/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Spiegeleisen. — The market remains dull and prices are nominal. English 20 % quoted at 77/6, f.o.b. shipping port.

Steel Rails.—Business slow and buyers and sellers wide apart on prices. Heavy sections quoted at £4 @ £4. 2/6, f.o.b. shipping port.

Steel Blooms.—Very little business passing and the market rather weak. Makers ask £4 for 7 x 7, f.o.b. shipping point.

Steel Billets.—Business continues slow and prices are rather weak. Bessemer, 2½ x 2½ inches, quoted at £4. 5/, f.o.b. shipping point.

Steel Slabs.—Very little business passing and the demand slow. Bessemer quoted at £4. 5/, f.o.b. at shipping point.

Old Iron Rails.—A dull market with prices still in buyer's favor. Tees quoted at £2. 15/ and Double Heads at £2. 17/6 @ £2. 18/9, f.o.b.

Scrap Iron.—Sales moderate and the market rather weak. Heavy Wrought Iron quoted at £2. 10/ @ £2. 12/6, f.o.b.

Crop Ends.—Market dull and prices nominal. Bessemer quoted at £2. 12/6 @ £2. 15/, f.o.b.

Manufactured Iron.—No improvement in the demand for anything in this line, and prices barely steady. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ordinary Marked Bars	8	10	0	@		...	
" Common "	6	7	6	@	6	10	0
Staff. Bl'k Sheet, singles	7	10	0	@		.....	
Welsh Bars (f.o.b. Wales)	5	10	0	@		.....	

Tin Plate.—Movement slow and some business at prices below those generally quoted. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	14/ @ 14/3
IC Bessemer Steel, Coke finish	12/3 @ 12/6
IC Siemens " " "	12/6 @ 12/9
IC Coke, B. V. grade 14 x 20	12/3 @ ....
Charcoal Terne, Dean grade	12/ @ 12/3

Pig Tin.—Market firm, with fair demand at the close. Straits quoted at £90. 17/6, spot, and £91 for three months.

Copper.—The market closed very firm, with demand good. Merchant Bars quoted at £45. 17/6, spot, and £46. 7/6, three months' futures. Best selected, £50.

Lead.—Business moderate and the market a shade easier at £10. 12/6 for Soft Spanish.

Spelter.—Sales fair and the market firm at £22. 7/6 for ordinary Silesian.

HARDWARE.

Condition of Trade.

REPORTS FROM manufacturers and jobbers in different parts of the country indicate that a business very satisfactory in volume is now doing, but on the part of manufacturers especially there is a general complaint of prices as being at too close a margin for satisfactory profits. While business has not attained such exceptional volume as was hoped for it during the present season, there is little doubt that taken all in all it will compare favorably with other years. A number of manufacturers advise us that a comparison of their sales gives this year a good showing, and in several instances the aggregate is in excess of last year. There are also indications that the retail trade throughout the country are purchasing more freely, not, however, from any expectation of higher prices in the near future, but in response to the quickening demand which comes with the opening of spring. The changes in price which have taken place during the past week are comparatively few and unimportant. The adoption of a new Wire Nail card is in the way of revision rather than a change in market prices. On many staple goods prices continue low and in some instances the weakness in the market shows itself in slight concessions for the purpose of inducing orders.

Chicago.

(By Telegraph.)

The volume of business in Shelf Hardware is large. The demand now is of a very general character, running over all kinds of goods usually handled at this season. There is as yet almost a total absence of speculative orders. Country merchants are buying light, but buying often, and their invoices almost invariably contain some staple goods. Specialties are doing well. The Bicycle trade is far ahead of that of last year. Reports from traveling men as to the future are very encouraging, and the year is expected to be one of the best the Chicago jobbers have ever known. Horton, Gilmore, McWilliams & Co. report a significant circumstance bearing on the excellence of trade. For the first time in ten years one of their salesmen has so far sold above the rate of $120,000 for the year, a remarkable achievement in this day of low prices, as the same quantity of goods sold would have brought perhaps 40 per cent. more only a few years since. Heavy Hardware shows a little decline now, and the volume of business is still large. Carriage Springs have been marked up to 70 and 10 off, by concerted action among the manufacturers.

St Louis.

(By Telegraph.)

Jobbers of Hardware report a slightly increased trade over last week. The weather has become settled and country buyers are now in the market for their spring stocks. The movement in staple lines is large and in Barb Wire and Wire Nails the demand is particularly heavy, but prices of the latter are weak and inclined to go lower. The demand for summer goods has set in somewhat earlier than usually and duplicate orders are already received for some specialties, principally Gasoline Stoves. Prices do not improve any, and, while quotably lower, extra discounts are sometimes given and jobbers are complaining accordingly. Collections are good, and on the whole the outlook, so far as volume of business is concerned, is highly satisfactory.

Notes on Prices.

Cut Nails.—The Cut Nail market continues without important change, the recent understanding among the Eastern makers being well adhered to, and the condition to this extent is somewhat better than a few weeks ago. Quotations are on the basis of $1.55 for Steel Nails in round lots at mill on a 25 or 35 cent average; this price, however, being subject to the arrangement between the mills by which they are at liberty to equalize freight with competing points. Iron Nails are quoted regularly 3 cents per keg less than Steel. On orders of 1000 kegs or more a concession of 5 cents is made on above prices. The quotation of small lots from store in New York is $1.75, and carloads on dock are held at $1.65.

Chicago, by Telegraph.—Cut Steel Nails are unchanged at $1.60 to $1.65 on 30-cent average from factory and $1.70 from stock.

Wire Nails.—A meeting of the manufacturers of Wire Nails was held at Cleveland last Wednesday, most of the leading mills being represented. The principal action was the adoption of a new Wire Nail card with a new miscellaneous Wire Nail list. Both of these were adopted, to go into effect April 11. In the Wire Nail card 60d Common is retained as the base size and only such changes are made in the card as are necessary to remove inequalities. On the old card small Nails, such as Casing and Finishing, were sold at higher extras than by the new card, so that this class of Nails paid, as it is expressed by one of the manufacturers, practically all the profit there is in the Wire Nail business, while the consumers of the large Nails were paying less than the actual cost. The new list is to correct this and to make the prices now ruling correspond more nearly with the cost of the goods. The new Nail card for Standard Wire Nails in kegs is as follows:

60d Common, Base.

Common, Fence, Shingle, Flooring and Common Brads.

	Advance.
60d	base.
50d	$0.10
30d and 40d	.25
20d	.35
12d and 16d	.45
10d	.50
8d and 9d	.60
6d and 7d	.75
4d and 5d	.90
3d	1.20
2d	1.60

Barbed Common and Barbed Car Nails.
15 cents advance over Common.

Casing and Smooth Box.

30d and 40d	$0.40
20d	.50
12d and 16d	.60
10d	.65
8d and 9d	.75
6d and 7d	.90
5d	1.10
4d	1 25
3d	1.50
2d	1.75

Barbed Box, 15 cents advance over Smooth.

Smooth Finishing Nails.

20d	$0.60
12d and 16d	.65
10d	.75
8d and 9d	.90
6d and 7d	1.10
5d	1.25
4d	1.45
3d	1 65
2d	1.90

Fine Nails.

2d	1 90
3d	1.60
4d	1.25

Lining Nails.

¾ inch	2.50
⅞ inch	2.20
1 inch	1.90

Barrel.

¾ inch	2.00
⅞ inch	1.75
1 inch	1.50
1⅛ inch	1.40
1¼ inch	1.20
1⅜ inch	1.00
1½ inch	.90

Slating.

2d	1.40
3d	1.20
4d	1.00
5d	.90

Barbed Roofing.

¾ inch	2.00
⅞ inch	1.75
1 inch	1.50
1⅛ inch	1.40
1¼ inch	1.25
1½ inch	1.10
1¾ inch	1.05
2 inch	.90

Clinch Nails.

2d	1.80
3d	1.40
4d and 5d	1.00
6d and 7d	.90
8d and 9d	.80
10d	.70
12d and 16d	.60
20d	.50

Wire Spikes.

3-inch to 9-inch	.50

Hinge Nails.

4d	1.50
6d	1.25
8d	1.00
10d	.90
12d to 16d	.85
20d	.80

The following is the Miscellaneous Wire Nail list, the prices stated being for Nails in kegs, the extras for papers, packages, boxes, &c., being also given:

Miscellaneous Wire Nails in Kegs.

Length.	Gauge.	Per pound. Cents.
¼ in.	No. 19	60
	" 20	80
	" 21	90
⅜ in.	" 18	45
	" 19	50
	" 20	60
	" 21	70
½ in.	" 18 to 14	40
	" 19	45
	" 20	50
⅝ in.	" 17 to 12	33
	" 18	35
	" 19	40
	" 20	45
¾ in.	" 15 to 10	28
	" 16	30
	" 17	32
	" 18	32
	" 19	35
⅞ in.	" 14 to 8	26
	" 15	27
	" 16	27
	" 17	30
	" 18	30
1 and 1⅛ in.	" 15 to 7	24
	" 16	26
	" 17	27
	" 18	28
1¼ and 1⅜ in.	" 13 to 6	21
	" 14	22
	" 15	23
	" 16	24
	" 17	25
1½ in.	" 13 to 4	20
	" 14	22
	" 15	23
	" 16	24
	" 17	25
1¾ in.	" 12 to 4	19
	" 13	20
	" 14	22
	" 15	23
2 and 2¼ in.	" 11 to 3	18
	" 12	19
	" 13	20
	" 14	22
2½ and 2¾ in.	" 9 to 3	17
	" 10	18
	" 11	18
	" 12	19
	" 13	20
3 and 3¼ in.	" 8 to 3	16
	" 9	17
	" 10	18
	" 11	18
	" 12	20
3½ and 4 in.	" 8 to 3	16
	" 9	17
	" 10	18
	" 11	18

Extras Not Subject to Discount.

	Cents.
¼-pound papers, per pound	2
½ " " "	1
1, 5 or 10-pound packakges, per pound	½
25 or 50 " boxes, per 100 pounds	25
Oval, cone or other special heads or points, per 100 pounds	50
Barbing or annealing, per 100 pounds	15

Nails combining several specialties, add as above for each. Galvanized or Tinned Nails at special prices.

It will be observed that by the above list the extras for packing are net and not subject to discount. The regular quotation on the new card is $1.70 for Penny Nails and 80 and 10 and 10 per cent. discount on the miscellaneous goods in large lots, f.o.b. mill.

Chicago, by Telegraph.—Wire Nails are in reasonably good demand from manufacturers and sales of round lots are noted The factory price has been lowered to $1.75, Chicago, but this is not an actual reduction, as it is made on the new card adopted by the large manufacturers, which advances the extras on many sizes, while reducing them on the very small sizes. Jobbers have also revised their rates and now quote $1.85 for small lots and $1.80 for carloads.

Barb Wire.—There has been little change in the Barb Wire market since our last issue. The volume of business is good, and several of the mills are full of orders. Quotations show but little change and are on a basis of $2.65 for carload lots of Four Point Galvanized at mill. New York prices for local trade are $3.10 for small lots, with a deduction of 10¢ for carloads.

Chicago by Telegraph.—Barb Wire is weaker, despite the heavy trade in progress, which keeps the mills behind on deliveries. Carload lots are quoted at $2.30 to $2.35 for Painted, and $2.80 for Galvanized. Jobbers quote $2 90 from stock and report an exceptionally good demand.

Guns.—The Gun trade of New York has been fair for the past six months, though a falling off of Southern orders is noticeable. The trade in the West and Northwest has been unsatisfactory; and the outlook justifies the anticipation of a large fall business with these portions of the country. There are hopes expressed that the monied conditions of the South may be so far improved by fall as to favorably affect trade in that direction. It is stated that the proportion of American and foreign Guns sold in this market is about three to one in favor of the American article.

Glass.—The meeting of the Glass manufacturers held at Chicago on the 5th inst. resulted in a decision to shut down the factories for the usual summer recess May 1, instead of June 31, as has been the usual custom. A paper devoted to the Glass interest, referring to the wisdom of the action taken by the manufacturers at this meeting, remarks:

There is a perennial complaint being made against the large importations of foreign Glass. To shut down with stock-rooms bare is a poor way to keep this foreign Glass out. Manufacturers cannot afford to allow a scarcity of American Glass to exist, if only for a month. Their foreign competitors are alive and active, and home manufacturers can only compete by keeping awake and improving their methods. It cannot be said that the increased tariff has benefited the trade during the past year, and manufacturers should look in some other direction for supremacy. But we do not believe the decision to close down is a permanent one. The date of a start-up is generally determined in the fall, and the decision is arrived at according to the condition of the trade at the time. It is only reasonable to believe that trade will be better in the fall, and while an early shut down may be possible, an early resumption may also be looked for.

It must, however, be borne in mind that last year the Glass factories shut down June 30, and did not begin operations again until the early part of October, resulting in a shut down of three months or more. The cause of this delay in starting up was occasioned by a demand for higher wages by some of the operators; and the matter was not finally adjusted until the last of September, at which time the scale of wages for the previous year was adopted. The condition of the market at that time was such that the manufacturers were not at all anxious to make an early start. The present blast has been an unsatisfactory one, from the manufacturers' point of view, as low prices have been the rule. If the demand for Glass could be stimulated at the present time manufacturers would doubtless feel justified in adopting an advanced price-list. It is yet too soon to determine what the effect upon the market will be, as a result of the decision to shut down at so early a date. Prices continue low and unsettled, especially in imported Glass, quotations having been made on a 30-box order within the last few days at 80 and 10 and 2 per cent. discount. Printed quotations remain unchanged, as follows: American Window Glass, 1000-box lots or more, 80, 10 and 5 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount; French Window Glass, 75 and 10 per cent. discount; American Plate is held at a discount of 50, 10 and 5 per cent., and imported Plate at a discount of 60 per cent.

Topping & Fox.

TOPPING & FOX, Hardware and Ship Chandlery, have recently moved into a large and commodious building at 92 Chambers street, this city. The building was erected especially for them and under their direction; consequently it is adapted in all its details to their needs. The building is five stories high, with a cellar and sub-cellar, the entire seven floors being required for their business. The first floor has shelving on one side reaching to the ceiling, before which are trolley ladders. The shipping desk occupies a position near the entrance, while the rear of the room is devoted to general and private offices. At the extreme back of the first floor and cellar are large skylights, which add much to the convenience of the rooms. The space at the base of the shelving on the first floor will be used for laying out orders, and the wall space not occupied by shelving will be utilized for samples. Speaking tubes connect the first floor with all the other floors, supplemented by electric bells to call persons to the tubes. A gas engine on the fifth floor runs the freight elevator and the building is heated by a hot-air furnace. A hand elevator for receiving goods runs from the sub-cellar to the sidewalk, while a small elevator runs from the first to the second floor. Heavy goods, such as Chains, large Bolts, &c., are kept in the sub-cellar, while the cellar and all the floors above are arranged with racks, shelves and bins for the accommodation of their large and varied stock of goods. Their new store will allow them to carry a much larger stock than formerly, and also gives them additional facilities for doing business. The moving was accomplished under rather disadvantageous circumstances, as business had to be carried on while the change was being made.

Methods of Recording Prices.

THE PROBLEM as to the best method for the Hardware buyer to keep track of the many articles handled by his trade is a difficult one, and for satisfactory work in this department the use of the best obtainable methods is desirable. The use of the price book is the most frequent, but there are some who prefer other methods, as, for example, the use of separate cards devoted to the different lines of goods. As any suggestion in this direction may be serviceable we reproduce below in *facsimile* a card carefully devised for this purpose by an experienced Hardwareman. It will be observed that it goes into considerable detail and is apparently part of a somewhat elaborate system. We take pleasure in laying it before our readers, to whom it may suggest a method adapted to their requirements.

At the same time we invite information in regard to other card systems of keeping track of prices.

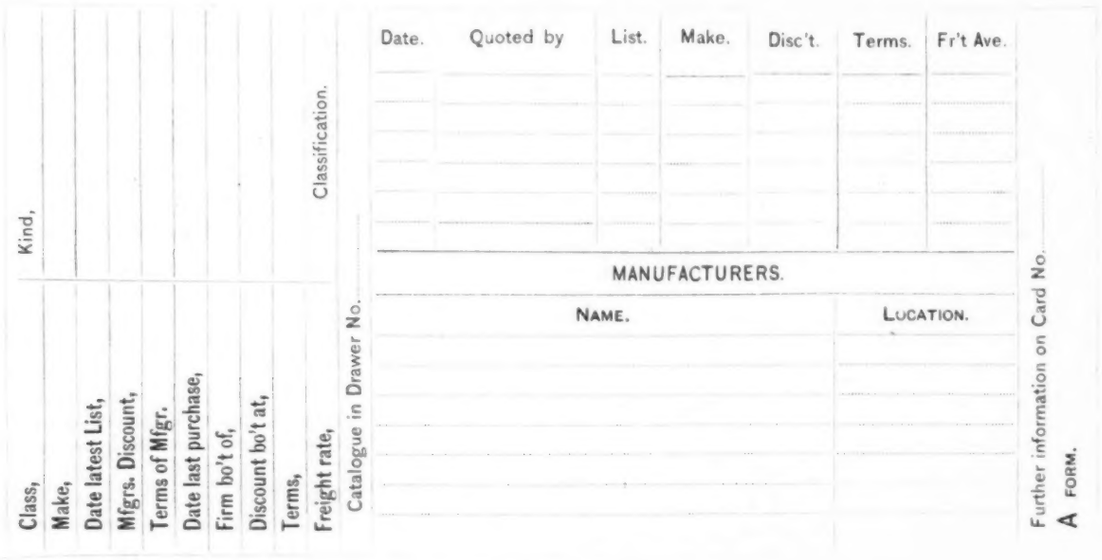


Fig. 1.—Card for Recording Quotations.

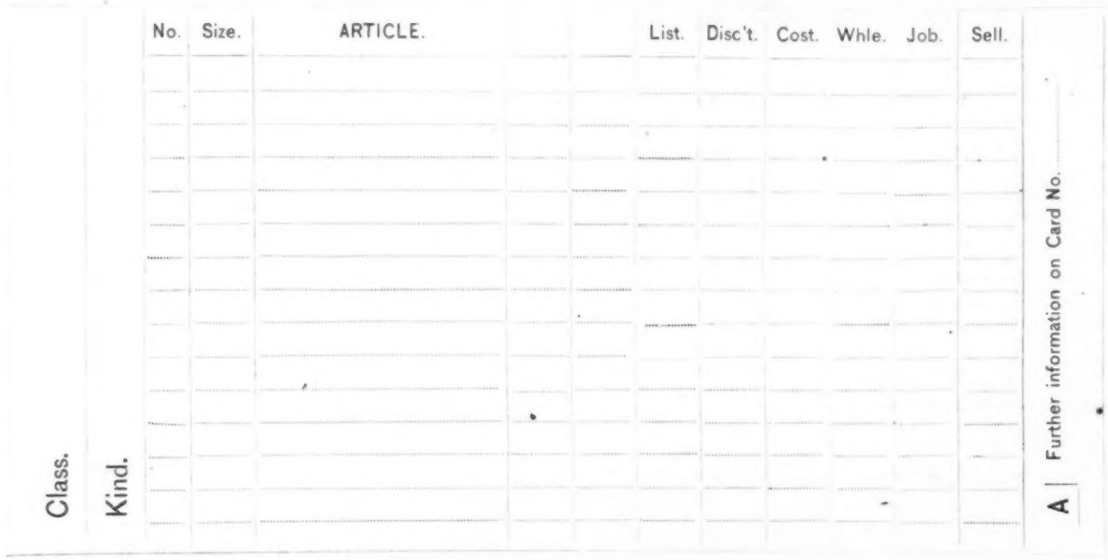


Fig. 2.—Reverse of Card for Recording Quotations.

Condition of Trade Abroad.

THE LAST ISSUE of the London *Ironmonger* discusses the question as to whether there has been a return to dullness in trade, as compared with the activity which has prevailed for a few years. They allude, it will be observed, to the decline in the volume of English export trade and the fact that production is apparently in excess of consumption:

The ascending movement commenced in 1888-89, and probably reached its highest point in 1890-91, since which there has been a tendency to retrogression. That tendency has become much more pronounced of late, and there are those who hold that we are now swiftly descending into the pit of depression, with all its attendant inconveniences. The recent experience of many business houses certainly lends ample color to this pessimistic view of the situation, and the Board of Trade returns afford irrefutable evidence of the steady decline of our export trade. On many grounds, therefore, there is only too much reason to fear that we are really "on the down grade," and that we shall be called upon to face lower prices, intensified competition at home and abroad, possibly heavier bad debts, troubles with workmen, and lessened profits. Looked at as a cycle, or period of years, these bad points are inevitable and of no more than trifling importance, but regarded *per se* they are sources of trouble, annoyance and loss. Bad times succeed good times, and *vice versa*, with almost unvarying regularity, but misfortune is always remembered longer than good fortune, and bad times, moreover, generally last much longer than the periods of prosperity. Nowadays there is a well-marked tendency toward extremes in trade and commerce. Through the telegraph the whole world is affected at once alike, and effects are quickly responsive to adequate causes. Thus, when trade is active it is apt to be what has been termed "uproarious," and when it is bad it has the appearance of being utterly upset. We may hope that the present decline will not be so pronounced as some of its predecessors, and that the bottom may be reached at no very distant date. Whether that will be or will not be the case is so entirely problematical, however, that it will be highly advisable for our merchants and manufacturers to be prepared for a long spell of

quietude and keen rivalry. There is no good reason for anything approaching to despair and despondency, but it is palpable that the world is entering upon a period of commercial rest and recuperation after a spell of intense activity. That activity has had the usual result of pushing production ahead of consumption. Within the past few years works have been extended, and the means of production enlarged in almost every industry and in all the manufacturing countries, until it has been forcibly demonstrated that the world is producing more manufactured articles than the world can consume. Other causes have helped to concentuate the decreased activity of commerce, but the essence of the whole matter is as just mentioned. The aggregate consumption of the world is much larger than ever before, but the powers of production are even greater, hence there must be a halt until the operation of inexorable laws has once more created an equipoise. In due course a beneficial change will be brought about, and when consumption grows greater than production prices will advance and activity reign. Until that happy consummation has been reached manufacturers will have to display increased energy and enterprise in order to secure business, and increased economy in production, so that they may obtain their share of the orders given out. It is not, and for some time to come is not likely to be, an era to sit down with folded arms, or with the intention of "letting things slide." On the contrary, it is a time to be "up and doing" with the maximum of energy and persistence, a time to be content with reduced profits, and a time to call into play all one's fertility of resources and determination to succeed.

Grant Monument.

A MEETING of those connected with the Hardware trade of the city is called for to day (Wednesday) at 3.30 p.m., at the Chamber of Commerce Building, 32 Nassau street, New York, for the purpose of conferring and advising with the officers of the Grant Monument Association in regard to the inauguration of a comprehensive plan for the prompt and vigorous prosecution of the work of constructing General Grant's tomb. This is one of a series of meetings in which all branches of trade and finance are to be interested. The call is signed by the following representatives of the Hardware trade:

W. R. WALKLEY.
THE CHARLES PARKER COMPANY.
UNDERHILL, CLINCH COMPANY.
M. C. OGDEN.
CHAS. LANDERS.
PETER MCCARTEE.
THE ALFORD & BERKELE COMPANY.
J. C. MCCARTY & CO.
QUACKENBUSH, TOWNSEND & CO.
SICKELS, SWEET & LYON.
JOS. F. MCCOY COMPANY.
J. CURLEY & BROS.
THE AMERICAN AXE AND TOOL COMPANY.
CHARLES MORRILL.

The object is certainly one which will commend itself to all, and it is to be hoped that there will be a full attendance.

THE GEO. WORTHINGTON COMPANY of Cleveland, Ohio, will handle the Monarch Safety in that State outside of Toledo territory, where Emil Grah has contracted with the Monarch Cycle Company, Chicago, for the agency.

New York Hardware Club.

A MEETING of the Club was held last Saturday in the parlors of the Cosmopolitan Hotel. R. R. Williams was called to the chair and E. C. Van Glahn was chosen secretary. The report of the Committee on Constitution was received and a constitution adopted by which the management of the club is to be in the hands of a board of 15 governors. The meeting adjourned to meet next Saturday, April 16, when the board of governors is to be elected. We are advised that the committee in charge have made arrangements by which this meeting will be held at the Cosmopolitan Hotel, corner of Chambers street and West Broadway, at 1 p. m., when lunch will be served. The hope is expressed that all in the trade who are connected with this movement will be present at that time.

Southern Hardware Jobbers' Association.

THE second annual meeting of the Southern Hardware Jobbers' Association will be held in Memphis, Tenn., on Friday, April 22, at 10 o'clock a.m. This association comprises 40 of the leading Hardware houses of the South, and it is intimated that methods for the protectection of Hardware interests and the building up and betterment of the Southern Hardware trade generally will be fully and freely discussed. It is stated that it is highly important that every firm in the association should have at least one representative present. W. P. Smith, secretary, Knoxville, Tenn., is endeavoring to procure reduced rates on all the railroads, and shall be pleased to have the different firms comprising the organization advise him as soon as possible as to how many of their representatives will attend the meeting, so that the Memphis jobbers, who are looking after the necessary hotel accommodations, may do so intelligently. It is suggested that if it is impossible for any member of the association to be present, that a written proxy may be forwarded to the secretary, designating some other member who can act for the firm thus absent. This association, although a new one, is active and influential, and the matters to which it is giving attention in connection with freights, &c., are of much importance.

American Screw Company's Patents in England.

REFERRING to the article in our issue January 28, on Screw patents in England, in which it was stated that the patents of the American Screw Company were sustained by the English courts, it will interest the trade to know that the Nettlefords appealed from the decision and that the case on appeal has just been decided in the American Screw Company's favor. From March 22 to 28 the case was heard before Lords Justices Lindley, Bowen and Kay in the Supreme Court of Judicature (Court of Appeals), London. Cable advices have just been received to the effect that the appeal was dismissed with costs by the unanimous decision of the court. This decision is referred to as giving a strong judgment in favor of the American Screw Company on the ground that there is no infringement.

This case was regarded with very much interest in England not only on account of the important issues involved, but also the eminence of the counsel on either side, and the fact that the whole matter was very ably presented. The American Screw Company are to be congratulated on this successful outcome of protracted litigation, and on the positions in which their important patents are thus established.

Trade Items.

MR. SHANKLIN of the Chicago Spring Butt Company, Chicago, expects to sail on May 25 for an extended trip through Europe with a view to introducing the Chicago Spring Butts in all of the principal Continental markets. We are advised that the goods already have a very satisfactory trade in England and Germany, and Mr. Shanklin is desirous of extending the business with the Old World. The following is about the route that he contemplates taking. Arriving in Liverpool, he will go to London, Paris, Brussels, Antwerp, Rotterdam, Amsterdam, Bremen, Hamburg, Copenhagen, Gottenburg, Christiana, Stockholm, St. Petersburg, Warsaw, Cracow, Vienna, Dresden, Leipsic, Berlin and Hamburg, from which point he will probably sail for America.

UNDER DATE April 5 the Rhode Island Perkins Horse Shoe Company, Providence, R. I., for whom J. C. McCarty & Co. are agents, 97 Chambers street, New York, issue a circular in which they state that during the past year they have filled a number of special orders for a Steel Shoe the size and weight of Extra Light Iron Shoe. They also intimate that in addition to these special orders they have had numerous inquiries for a Steel Shoe heavier than their XL Shoe. They have therefore decided to meet this want and have now a stock of Steel Shoes made upon the rolls and formers of the Extra Light Pattern. The company will brand them Medium XL Steel Shoes, the prices and terms of which will be the same as for the XL Steel Shoe.

WE ARE ADVISED that the Hardware business of the late A. G. Strong, Burlington, Vt., has been sold to a company who will continue it under the firm name of Strong Hardware Company. The two stores at 211 and 213 College street, formerly occupied by Mr. Strong, are being refitted. The stock of Paints, Brushes and Agricultural Implements is to be closed out and a specialty made of Heavy and Builders' Hardware, Mechanics' Tools and mill supplies. J. J. Whalen and W. E. Morse are the managers of the new concern. Mr. Whalen was buyer and salesman for Geo. I. Hagar for eight years, Mr. Morse having filled a similar position with the late A. G. Strong for the past ten years.

B. S. ALDER of Surpless, Dunn & Alder, 97 Chambers street, New York, has started on an extensive trip to the Pacific Coast. Beginning with Denver, he will visit the principal points and represent the important line of goods for which his house are agents to the large trade on the Pacific Slope, with many of whom we are advised they have already a large connection.

SABIN MACHINE COMPANY, Montpelier, Vt., are calling special attention to their Thill Coupling Spring, which is illustrated in their advertisement on another page.

This Spring is described as adapted to any coupling where rubbers are used. It is claimed that it does its work perfectly and is referred to as so formed as not to wear the iron of the Coupling, as it presents a flat, smooth surface to the bearing and yet holds the shaft in place, preventing all rattling. Its durability, low price and easy adjustment are also mentioned. The Spring is made in four sizes, ⅞, 1, 1⅛ and 1¼ inch.

THE PARTNERSHIP heretofore existing between John H. Kaucher and Samuel T. Reynolds of Reynoldsville, Pa., under the style of the Reynoldsville Hardware Company, was on March 31 dissolved by mutual consent. All debts owing the partnership are to be received by either member of the firm, and all demands are to be presented to either of them for payment. James K. Johnston, E. D. Seeley and Scott McClelland will continue the business at the old stand under the same title.

JOHN C. PARKES & SONS, Dublin, Ireland, favor us with two handsome catalogues of American goods for which they are agents. One is an illustrated catalogue and price list of the Goulds Mfg. Company's Pumps, Rams, Hydraulic Machinery, Fittings, &c., while the other is an equally attractive catalogue of American Clocks and Bronzes as made by the Waterbury Clock Company. The catalogues reflect much credit upon the compilers, as they compare favorably in execution and arrangement with similar work done in this country. In addition to these lines of goods the above firm are agents for Fairbanks & Co., Henry Disston & Sons, Sheble & Klemm, Clement & Dunbar, Reed & Barton, Baldwin Refrigerator Company and the Stanley Works, besides representing a number of foreign manufacturers.

THE BICYCLE STEP LADDER COMPANY, formerly of Davenport, Iowa, are now located at 184 and 186 Clark street, Chicago, where they are hereafter to be addressed.

AUSABLE HORSE NAIL COMPANY, 4 Warren street, New York, instead of occupying their advertising space with the usual matter, give illustrations of miniature Horseshoers' Tools. These tools were forged by William Russell, one of the representatives of the company and author of Russell's "Scientific Horseshoeing," and were forged cold from Ausable Horse Nails. In this ingenious piece of work it will be observed that the Horseshoe, Anvil, Rasp, Knives, Hammers, &c., are represented.

JAS. H. ROBLEY, Eastern representative of Pullman Sash Balance Company, Rochester, N. Y., has recently opened an office at 82 Chambers street, New York, where a full stock of the Pullman Sash Balance will be carried at all times. Mr. Robley informs us that from the present outlook the company will be obliged to double their last year's output to supply the demand for these goods.

SIDNEY SHEPARD & Co., Buffalo, N. Y., send out a leaflet in which they allude to the demand for the past few years for cheap Tinware without much regard to quality, and mention that manufacturers have responded to this demand in such a way that the quality has been reduced in every way possible in the use of poorly coated and lighter Tin Plates; in diminished sizes; in substituting hollow beads for wire edges; in unsoldered or badly soldered seams; in the use of light and unsuitable trimmings, and in the employment of cheap, unskilled labor. They then state that they do not pretend to put their Ware in competion with this worthless stuff, and refer to their prices as being as low as can be afforded for the quality of the goods they produce. A growing demand for good Ware is noted, there being something of a reaction against such shoddy goods. It is suggested that relief lies with the conscientious dealer who will sell only what he can recommend.

THE MONARCH CYCLE COMPANY, Chicago, have secured the services of C. S. Merrill, who is now East in their interest. He is meeting, we are advised, with gratifying success.

C. B. HUBBARD & Co., Jacksonville, Fla., announce under date April 1 that after years of pleasant partnership they have decided to incorporate as the S. B. Hubbard Company. The same men compose the new as were in the old company, and the same interests will be maintained. They state that it will be their aim to increase their trade by keeping first-class goods, attentive salesmen and moderate prices. The company have just moved into their new block, built expressly for their business, with every convenience for the prompt handling of goods, and state that with their large new three-story warehouse on Forsyth street, they have 50,000 feet of floor space, which are now stocked with goods.

Price-Lists, Circulars, &c.

BRIDGEPORT GUN IMPLEMENT COMPANY, Bridgeport, Conn., and 315 Broadway, New York: Revised price list, March 1, 1892. The price-list comprises 45 pages and illustrates Loaders, Rapid Loading Machinery, Bench Closers, Handy Lathe and Closer Cups, Recappers and Cap Extractors, Shell Cutters and Extractors, Metal-Lined Loading Blocks, Powder and Shot Measures, new Standard Nitro Powder Measures, Cartridge Reloading Sets, Pocket Compasses, Standard Cleaning Rods, Cleaning Implements, Lubricants, Gun Cleaning Sets, Gun Implement Sets, Calls and Whistles, &c. The last three pages of the catalogue are devoted to the Forstner Auger Bit, which is illustrated and described, with representation also of some of the work which may be done with it. The company call special attention to their Handy Closers for nitro and black powders, Jointed Rifle Rods, Paravaseline and the many improvements in the models of their regular goods.

HAYES TOOL COMPANY, Portland, Me.: Hayes Parallel Wedges, Adjustable Chuck Drill Rest, Adjustable Pipe Die, Patent Tube Expander, Tube Sheet Cutter. Circulars are issued illustrating and describing these devices. The Parallel Wedges are intended for use in machine shops, where there is constant use for wedges and shims for setting work true, &c. This tool is alluded to as doing away with such usage, raising or lowering the work the smallest fraction of an inch quickly and accurately. The Adjustable Chuck Drill Rest is described as made entirely of steel, being strong and serviceable. It is stated that by loosening the binding screw the top can be raised or lowered for different sized drills. The easy cutting qualities of their adjustable Pipe Die are referred to, its use on brass pipe being especially pointed out. In this tool the dies can be adjusted by screwing up the corner screws. In their Patent Tube Expander the middle roll of each set is described as a trifle smaller than the two outside rolls, thus giving, it is claimed, a triple expansion. The Tube Sheet Cutter is designed to cut tube holes from 2½ to 6 inches diameter

MICHIGAN EMERY WHEEL COMPANY, Detroit, Mich: An eight-page circular is issued in which their Michigan Vitrified Pure Sapphire Corundum Wheel is described. This wheel is referred to as having no emery in its make-up or any other substance which interferes with or detracts from the cutting qualities of the corundum. It is mentioned that this wheel is especially adapted for all classes of tool grinding, and all places where a fine finish is required. Their Perfection Wheels and Perfect Saw Gummer are also briefly described. Representations of faces and price lists of Emery and Corundum Wheels, Emery Cylinders and Cup Emery Wheels are given in the closing pages of the circular.

QUEEN CITY SUPPLY COMPANY, Puchta, Pund & Co., proprietors, Cincinnati, Ohio: Blacksmiths', Contractors', Engineers', Factories, Mills, Mines, Machinists' and Quarry Supplies. They state that these goods, or anything else in the line of supplies, they can furnish at once from stock, as promptness is one of their strong points.

C. HAGER & SONS HINGE MFG. COMPANY, St. Louis, Mo.: Illustrated catalogue and price-list. This is a handsome little volume of 25 pages tastefully bound and represents the line of Steel Strap and T Hinges, Screw Strap Hinges, Plate Hinges, Washers, Wagon Bow Staples, Corner Irons, &c., made by the company. It is stated that special Hinges and Washers are made to order. A view of the company's works, 2427 to 2437 De Kalb street, is given.

STEIMER & MOORE MFG. COMPANY, Westfield, Mass.: Descriptive catalogue of Whips and Lashes, 1892. The catalogue thus relates to Rattan Whips, Drop Tops, Rattan Whips, Buggy Style, Rattan, Short Butts, Loaded, Stocked Java Whips, Rawhide Buggy, One-third Whalebone, One-half Length Whalebone, Two-thirds Whalebone, Full Bone, Malacca, Track, Dog Whips and Quirts, Team Whips, Reaper Whips, Tandem Whips, Repair Whips, Toy and Riding Whips and Crops, Stage Stocks and Lashes, &c.

BARKER, BELDEN & Co., Pittsfield, Mass.: An eight-page circular giving the Massachusetts fish and game laws, Pittsfield fire-alarm numbers and distances from Pittsfield Post Office, together with illustrations of some of the Bicycles which they are handling as dealers in Sporting Goods, Hardware, Tools, Paints, Oils, &c.

THE GOULDS MFG. COMPANY, Seneca Falls, and 16 Murray street, New York: How to spray, when to spray and what pumps to use. This catalogue contains instructions of how to insure the life and yield of fruit trees, grape vines, berry bushes, &c. Illustrations and descriptions are given of various forms of Spray Pumps, Force Pumps, &c., some of which have lately been put on the market.

J. G. SPEIDEL, Reading, Pa.: Portable Hoists, Derricks, Economic Safety Hoist, Overhead Tramway, Cranes, &c. The advantages of Speidel's Economic Safety Hoist are referred to as being simplicity, safety, economy, quick action, strength and durability. The catalogue is illustrated, showing the various adaptations of the Hoist.

GRISWOLD BROS., Troy, N. Y.: Wire Nails, Bright, Annealed and Coppered Wire, Hook and Eye Wire, Pin Wire, Weaving Wire, &c. Also Steel Wire Bale Ties for Baling. Wire straightened and cut to order. List prices are given of these goods, also a table of gauge, length and weight of Steel Wire.

A. L. SWETT IRON WORKS, successors to the Medina Mfg. Company, Medina, N. Y.: Price-list 1892. A large line of Hangers, including the Hamilton, Perfection, United States, Flange, Rider Wooster, Champion, Check Back, Western Pattern, Samson, Orleans and Climax, Snatch Blocks, Barrel Headers, Clothes Irons, Chain, Chain Pump Castings, Door Pulls, Hitching Weights, Mauls, Mandrels, Hay Fork Pulleys, Corn Poppers, Acme Rollers, Rail Brackets, Stay Rollers, Tire Benders and Shrinkers, Tuyere Irons, Saw Vises, Washers, &c., are illustrated, accompanied in some cases by brief descriptive particulars. Special attention is called to their Perfection Door Hanger and Hinge Stay Roller, the durability of which is referred to. It is also stated that in their iron foundry

the works are prepared to mold light castings. The best soft and strong iron is used they claim in their own goods, their castings being smooth, strong and soft and easy to drill.

STORM MFG. COMPANY, Newark, N. J., John H. Graham & Co., agents, 113 Chambers street, New York: Dumb Waiters, Elevators and Hardware Specialties. These goods are represented in their catalogue for 1892, in which they call attention to their increased line, which now includes New York Safety Dumb Waiter, Manhattan Dumb Waiter, Improved Humphrey Hand Elevator, No. 40 Hand Elevator, Carriage Elevators and Invalid Lifts. The company state that they can also supply a complete line of Belt Power Elevators of any capacity from ½ ton up, to run either by steam or electricity, also Sidewalk Elevators, Automatic Hatch Doors, &c. Accompanying the catalogue is a special list containing the names of several hundred users of their fixtures in different sections of the country from whom they have received flattering testimonials.

Union Nut Company.

THE UNION NUT COMPANY, New York, are now occupying the commodious building 107 Chambers street and 91 Reade street, New York, which has been refitted in order to give them the requisite accommodations and adapt it to their business. The building is a long one, running from Chambers to Reade streets, and the first floor is devoted entirely to offices. The Chambers street end of the floor is fitted up for the general and private offices of the company, the Reade street end being devoted to the financial department. The intermediate space is partitioned off for offices, six on each side, which will be disposed of to those wanting desk room. A 5-foot passageway runs through the center of the floor, the offices being on either side inclosed with ornamental iron grille work. A few of these offices, which are of two sizes, 9 x 11 and 9 x 15 feet, are to let on moderate terms. They are well ventilated and equipped with steam heat and electric light and are under a janitor's care. The basement below has shelving on both sides to the ceiling, which is about 16 feet high, where their stock is kept and where orders are filled. In addition to the stock on hand, 18 tons of goods are on the way from the factory. A sub-cellar is used for surplus stock. All goods are received at the Reade street entrance, where are two freight elevators. The shipping department is also here, and is connected by a hand elevator with the basement. Speaking tubes afford ready communication from the offices with all departments. The facilities for handling their business are much greater than in their former store, and a much larger stock will be carried.

It Is Reported—

That W. M. Rauhenhold, Hardware merchant, Hamburg, Pa., is erecting a large warehouse.

That Bostwick & Pitts is the style of a new Hardware firm at Phelps, N. Y.

That A. J. Craig has entered into partnership in the Hardware business at Knoxville, N. Y.

That a handsome business block will be erected by Thomas J. Lindley, Hardware merchant, Jeffersonville, Ind.

That R. Bierman will rebuild his Hardware store at Cherry Valley, N. Y., which was recently destroyed by fire.

That the Hardware firm of E. Sperry & Co., Sherman, N. Y., has been dissolved by mutal consent. The senior partner retires. The business will hereafter be conducted by W. H. Sperry, who will take A. H. Fraser for a partner.

That A. Chandler & Son, the veteran Hardware dealers, who retired from the business in Coldwater three years ago, have purchased the Hardware stock of Chas. E. Barlow's creditors and will resume business at the old stand.

That L. H. Pollard has sold his Hardware store at Lovington, Ill., to A. C. Harrison of Windsor.

That the Hardware firm of Pinkerton, Evans & Hague, Monmouth, Ill, has been dissolved. Pinkerton & Evans will continue at the old stand.

That Cunningham & Cole, general Hardware merchants, of Dushore, Pa., will dissolve partnership April 1.

That A. Raymond, who purchased the Hardware store of W. G. Roberts, Eldred, Pa., has taken possession.

That Neff & Hollister of Corning intend starting a Hardware store at Mount Ayr, Iowa, in the near future.

That J. G. Hartez's Hardware store, 176 Myrtle street, Detroit, Mich., was robbed on the 11th inst.

That the firm of Kirk, Christy & Co., Warren, Ohio, so far as Hardware department is concerned, has been merged into the Warren Hardware Company, with business location at the stand of Kirk, Christy & Co. The officers of the company are as follows: H. C. Christy, president; Isaac Kirk, vice-president; F. E. Caldwell, secretary and treasurer and Jno. C. Shook, manager.

That W. Himes Clark has closed out his Hardware business at Bowling Green, Ky., and accepted a position with the Simmons Hardware Company of St. Louis, for whom he will travel.

That a new Hardware store will be opened in the Moore Block, Geneva, N.Y., by Mr. Bishop of Newfield.

That the Hardware firm of Lawrence & Rowlson, Hillsdale, Mich., was dissolved on the 4th inst., Mr. Rowlson retiring.

That the Rodick Hardware Company of Marietta, Ohio, have been incorporated, with a capital of $10,000.

That W. C. Hawkins, Franklin, Pa., has sold his Hardware establishment to M. J. Campbell, Utica, Pa., who will remove his family and take possession of it April 1.

That Peter Chase has purchased Mr. Runyun's interest in their lot on Main street, Clinton, N. J., and will build a storeroom and resume the Hardware business.

That Anthony J. Waterman of Morganville, N. Y., has purchased the Hardware business of John Rambo at South Byron, N. Y.

That the Hardware firm of Wightman & Ruggles, Norwich, N. Y., have been dissolved by mutual consent, Mr. Ruggles retiring.

That F. W. Holmes of East Otto, N. Y., has sold a half interest in his Hardware business to C. H. Mason of that town.

That Tracy & Robinson have succeeded the well-known Hardware house of Tracy, Tarbox & Robinson, Hartford, Conn.

That Rumler & Nowers have commenced the Hardware and Implement business at Atkinson, Ill.

That Fletcher & Barber are a new Hardware firm at Milledgeville, Ill.

That O. F. Lucas of West Newton, Mass., has sold to John T. Cushing of Providence, R. I., his well-established business of Hardware, Stoves, Furnaces, &c. H. H. Murdock, who has been clerk and bookkeeper with Mr. Lucas for a long time, will be retained in that capacity by Mr. Cushman.

That Brazil, Ind., has a new Hardware firm, under the style of Ross, McCrea & Brown.

That Church & Madison, dealers in Implements, Bridgewater, Iowa, have sold out their business.

That the Agricultural Implement firm of C. H. Dodd & Co., Walla Walla, Wash., having purchased the lot 50 x 120 feet on the southwest corner of Alder and First streets, will next fall erect thereon a fine two-story brick building in place of the present old wooden structure. Work on the new building will commence the 1st of August, the firm not being able to begin until the harvest season is well advanced and the summer trade over.

Exports.

PER SHIP JOHN E. SAYRE, MARCH 5, 1892, for MELBOURNE, AUSTRALIA.

By Coombs, Crosby & Eddy Company,—1 crate Washer and Wringer.
By Wm. E. Peck.—3 packages Lamp Fixtures, 1 case Hardware, 8 cases Lamp Fixtures, 1 case Hardware, 11 packages Lampware.
By Woodhouse & Stortz.—43 packages Hardware, 22 cases Tools, 8 cases Agricultural Implements, 8 packages Lamp Goods, 1 case Electroplated Ware.
By Harrisburg Handle Company.—107 cases Handles.
By Bradley & Hubbard Mfg. Company.—8 packages Lamp Goods.
By the Fairbanks Company.—18 boxes Scales.
By Russell & Erwin Mfg. Company.—4 cases Hardware.
By Arnold, Cheney & Co.—2 boxes Tools, 9 cases Axles.
By R. W. Forbes & Son.—1 case Axle Nuts, 9 cases Carriage Bolts, 9 packages Lampware.
By John A. Roebling's Sons Company.—2 pieces Steel Wire Rope, 493 pieces Pig Iron.
By Edward Miller & Co.—3 packages Lamp Goods.
By Arkell & Douglas.—400 reels Barb Wire.
By W. H. Crossman & Bro.—4 cases Hardware, 6 cases Lamp Goods, 5 cases Hardware, 10 cases Axes, 2 crates Jacks, 6 cases Iron Bolts, 20 packages Hardware, 40 boxes Axes, 1 case Revolvers, 1 cases Cartridges, 1 case Lawn Sprinklers, 1 case Hardware, 8 cases Pump Parts.
By R. H. Dana & Co.—2 cases Oil Stones, 82 cases Axes, 2 cases Drills, 3 cases Bolts, 7 cases Axes, 1 case Hardware, 86 cases Axes, 1 case Picture Cord, 1 case Pencils, 4 cases Hardware, 199 cases Axes.
By Strong & Trowbridge.—4 cases Bolts, 7 cases Nails, 1 case Brads, 1 case Locks, 1 case Wire Goods, 1 case Door Springs, 1 case Locks, 2 cases Hardware, 2 crates Handles, 2 cases Bush Hooks, 1 case Hammers, 1 case Saws, 1 case Braces, 1 case Hog Ringers, 1 case Braces, 45 kegs Nails, 1 case Borers, 1 case Drawing Knives, 2 cases Hammers, 1 case Braces, 10 cases Axes, 4 cases Handles, 1 tierce Lampware, 1 crate Washing Machines, 3 cases Hardware, 3 cases Cartridge Shells, 1 case Rifles, 4 cases Revolvers, 3 cases Rifles, 4 cases Cartridges, 2 cases Shells, 1 case Rifles, 1 case Hardware.
By McLean Bros. & Rigg.—2 cases Saws, 1 case Shears, 2 cases Lampware, 12 cases Stocks and Dies, 1 case Wrenches, 3 cases Scoops, 2 crates Flour Sifters, 1 case Tools, 4 cases Forges, 1 case Fire Arms, 1 case Drills, 2 crates Scrapers, 19 cases Scales, 22 kegs Nails, 1 case Bolt Cutters.
By A. Field & Co.—2 cases Bolts, 1 case Malleable Iron.
By R. W. Cameron & Co.—1 case Bolts, 1 case Hammers.
By W. K. Freeman.—2 cases Hardware, 2 cases Cartridges, 7 cases Shells, 3 cases and 4 packages Hardware.
By Mailler & Quereau.—6 cases Clothes Wringers, 10 cases Axe Handles, 4 cases Windmills.
By H. W. Peabody & Co.—1 case empty Cartridge Shells, 10 cases Wringers, 9 cases Hardware, 1 case Lamp Goods, 10 cases Horse Nails, 1 case Agate Ware, 2 cases Sandpaper, 20 kegs Nails, 22 kegs Nails, 38 packages Builders' Hardware, 160 reels Barb Wire, 26 packages Hardware, 4 packages Stoves and Parts, 1 case Wringers, 1 case Tools, 33 packages Hardware, 6 dozen Oil Stones, 6 barrels Lampware, 2 gross Traps, 45 dozen Edge Tools, 42 dozen Edge Tools, 320 pounds Bolts, 10 cases Hardware, 1 case Whips, 1 case Hardware, 3 cases Bolts.

PER BARK DEERHILL, MARCH 8, 1892, FOR PORT ELIZABETH, SOUTH AFRICA.

By A. Field & Co.—2 cases Hammers, 2 cases Saws, 1 package Diggers, 3 cases Guns, 1 case Axes, 1 case Planes, 7 cases Cartridges, 1 case Hardware, 2 cases Cartridges, 1 case Air Rifles, 1 case Tools.

By Strong & Trowbridge.—15 cases Cartridges, 2 cases Hardware, 2 cases Alarm Tills, 1 case Tacks, 1 case Locks, 1 case Air Guns, 1 case Mallets, 1 case Bits, 1 case Faucets, 4 cases Hardware, 5 Lawn Mowers, 2 dozen Pulley Blocks, 137 kegs Nails.

By Arkell & Douglas.—2 cases Fuse, 10 cases Picks, 5 packages Stoves, 21 cases Wind Mills, 10 cases Tacks, 67 cases Hardware, 114 cases Axes and Hatchets, 109 kegs Nails, 3 cases Scrapers, 1 case Lamps, 1 case Stamped Ware, 1 case Rakes, 48 cases Plows, &c., 1 case Tools and Primers, 30 coils Rope, 19 cases Choppers and Mills, 3 packages Mills.

PER BARK DOUGLAS, MARCH 4, 1892, FOR PORT NATAL, SOUTH AFRICA,

By H. W. Peabody & Co.—5 packages Hardware, 1 case Seed Sowers, 2 crates Agricultural Implements, 24 cases Handles, 2 packages Pumps.

By Coombs, Crosby & Eddy Company.—11 cases Plows and Fittings, 3 cases Tools, 1 case Hay Rakes, 3 crates Mouse Traps, 12 cases Tools, 6 cases Edge Tools, 6 crates Ladders, 1 case Tools, 6 cases Plows, 15 cases Tools, 10 cases Plow Parts, 24 bundles Wheelbarrows, 3 cases Edge Tools, 3 cases Bird Cages, 1 cask Plated Goods, 7 cases Hardware, 1 bale Hose, 3 casks Pumps, 2 crates Stoves, 20 kegs Nails, 8 crates Shellers, 21 packages Hardware, 10 cases Plow Parts, 3 crates Churns, 2 cases Locks, 2 crates Handles, 7 packages Lawn Mowers, 1 case Carpenters' Tools.

By Arkell & Douglas.—240 cases Plows and Parts, 18 packages Churns, 4 cases Hay Cutters, 2 packages Stepladders, 1 case Hardware, 3 cases Bench Screws, 6 cases Handles, 10 cases Hardware, 2 cases Handles, 4 cases Wringers, 62 cases Axes and Hatchets, 2 cases Picks, 1 case Saws, 68 cases Handles, 17 cases Hardware, 250 reels Barb Wire, 15 racks Shellers, 77 cases Axes and Hatchets, 209 cases Plows and Parts, 18 packages Churns, 10 packages Shellers, 1 bundle Sash Cord.

PER BARK EUGENIE, MARCH 9, 1892, FOR PORT ELIZABETH, SOUTH AFRICA.

By W. H. Crossman & Bro.—200 kegs Nails, 144 cases Furnishing Hardware, 333 cases Agricultural Implements and 28 Packages Parts, 1 case Hoes, 2 bundles Ladders.

By Norton & Son.—30 cases Axes, 27 packages Agricultural Implements.

By Corner Bros. & Co.—86 cases Agricultural Implements.

By Coombs, Crosby & Eddy Company.—20 cases Plows and Fittings, 3 racks Shellers, 19 cases Plows and Fittings, 18 cases Tools, 5 crates Churns, 1 case Wringers, 2 cases Pumps, 3 cases Plows, 40 dozen Handles, 4 dozen Corn Shellers, 54 dozen Handles, 1 case Ladders, 2 cases Tools, 13 cases Scales, 15 packages Hardware, 12 kegs Iron Nails, 3 crates Shellers, 500 reels Wire, 1 case Tools, 1 bundle Rakes, 1 case Stepladders, 250 kegs Nails, 300 dozen Handles, 56 cases Plows and Parts, 3 cases Wood Scrapers.

PER BARK HIRAM, MARCH, 23, 1892, FOR CAPE TOWN, SOUTH AFRICA.

By Coombs, Crosby & Eddy Company.—4 dozen Lamps, 15 Scrapers, 30 Hay Cutters, 24 cases Meat Choppers, 12 dozen Mouse Traps, 30 Churns, 2 Rope Reels, 3 Scales, 40 reels Barb Wire, 85 dozen Hardware, 10 dozen Axes, ½ dozen Wringers.

By M. Berliner.—2 cases Hardware.

By Arkell & Douglas.—1 case Hardware, 1 case Lampware.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Without exception jobbers express satisfaction with the volume of business accomplished during the past week, and manufacturers' reports were uniformly more roseate than those that have been made at any previous time since the opening of the spring season. The turn that has taken place in the Linseed Oil market has been of some assistance, serving as it does to check the late constant demand from many buyers for a reduction in prices of various Paints because of the cheapness of Oil, and the firmness to values of base materials also operates to promote confidence. The strongest feature, however, is the heavy consumption, due in a good measure to favorable weather conditions that have permitted outdoor work to be pushed forward in this quarter and immediate vicinity. Changes in values have been very few during the week, and the only one worthy of special mention is a reduction on Quicksilver Vermilion by the associated manufacturers.

White Lead.—The movement of this pigment has been quite as full the past week as it was in the preceding one, and apparently well in line with what is usual at this season of the year. To all accounts jobbers are cautious about placing orders for maximum quantities on which the inside card rates made by corroders are obtained, but the run of orders for lots of 5 tons and less is liberal and of sufficient volume to keep the market in good form. Outside corroders deviate to a slight extent from the combine prices, but movements in that direction have no weight upon the general market, since the concessions are rarely made except to buyers who may place orders for other goods on which the margin of profit is liberal. Mixed Leads have been moving out in a fairly liberal way and prices current for some time past for the various grades are maintained.

Red Lead.—In this line merely a routine business has been experienced, but the amount of stock involved is somewhat above the average latterly, indicating a full consumption. The National Lead Company's list for domestic product remains without change and for the small quantities of English that are moving 8¼¢ @ 9¢, as to size of lot, is obtained.

Litharge.—Common grades used by glassmakers have met with very fair sale, and prices stand at 5½¢ @ 6¢. In the finer qualities there has been merely a fair trade and that almost exclusively at the combine prices.

Orange Mineral.—The distribution of moderate quantities keeps up fairly well, with foreign brands given the preference by most buyers, but purchases are very little, if at all, in excess of what is dictated by imperative wants. There is no change in prices of either foreign or domestic brands.

Zincs.—Of American Oxide there is still a liberal movement, chiefly in the form of deliveries on back orders, and, now that contracts with the Passaic Company, who have suffered serious loss by fire, have to be turned to other quarters, some difficulty is experienced in placing new orders with satisfactory guarantee as to deliveries. Foreign brands are selling somewhat more freely, yet not to a fuller extent than usual at this season of the year.

Colors, &c.—The associated manufacturers of Quicksilver Vermilion have reduced their prices to 57¢ ℔ lb for kegs of 100 lb and over, 58¢ for bags of 30 or 50 lb and 62¢ for smaller quantities, less 1 % for cash. Outside producers have made a similar reduction. The change is attributed to cheaper crude material; but there is some evidence that competition of artificial Vermilion is making headway and encroaching upon the high-grade product. In other dry Colors there have been no changes and the market for Oil Colors, Mixed Paints, &c., remains practically as outlined last week.

Miscellaneous.—Arrivals of Block Chalk are closely absorbed in deliveries on former purchases and prices therefore remain very steady. In Whiting there is a good business at previous prices, chiefly for May and June delivery. In Clays there has been no change of importance.

Oils and Turpentine.

In the general line of Animal and Vegetable Oils values are characterized by more uniform firmness than has been witnessed previously this year, and the prospects also seem to be more encouraging to sellers. The recent advances in Linseed Oil seem to stimulate buying, since nothing transpires to reflect upon the endurance of the better condition of affairs, and a firmer position taken by the chief holders of Cotton-Seed Oils has served to enliven business in that line also. As yet it does not appear that other Oils are favored by similar action on the part of leading handlers of the goods, but it is the exception that a better tone does not prevail and that distribution does not show improvement. Taken as a whole, the outlook is favorable and suggestive of further advances in values.

Linseed Oil.—City pressers have enjoyed a quite brisk demand for their product and report sales as being freer at the present time than they were a month ago, when prices ruled about 2¢ per gallon lower. Outside brands are not having remarkably free sale in this quarter, but at points nearer to the producers there seems to be a good outlet and the Eastern markets are therefore less sought after. In short, it would appear from the general report that the output in nearly all quarters is well taken up and additional evidence is presented that the low prices current thus far this year have not only led to a freer consumption of pure Oil, but pretty thoroughly discouraged the use of substitutes and adulterants.

Cotton-Seed Oils.—There has been a more active movement in both crude and refined products and the market is strong at an advance of fully 2¢ ℔ gallon. According to current report supplies are now controlled in a good degree by the two leading crushers, who, in view of the fact that grinding is practically at an end for the season, are in a position to practically dictate prices. The advance thus far appears to have operated to stimulate rather than restrict buying, and present indications are that values will be carried still higher. Of prime quality crude about 1200 barrels have been sold at from 25¢ up to 27¢. Fully 2500 barrels prime Summer Yellow were disposed of at prices ranging from 28½¢ up to 31¢, and 1000 barrels "off" grade do. at 28½¢ @ 29¢. Other transactions include 1000 barrels Winter Yellow at 33¢, 100 barrels Summer White at 31¢ and 600 barrels Winter Yellow at 34¢. The highest prices quoted were current at the close.

Lard Oil.—In this line there has been no decided change. The demand has run somewhat irregular, yet very fair all told, and, in the absence of any regular change in the market for raw material or more than ordinary outside competition, prices have been held very steady.

Fish Oils.—Some parcels of crude Whale Oil are going forward to New Bedford on old contracts, but little or no new business in that article or in crude Sperm or crude Whale Oils is passing and values therefore remain without change. The manufactured products are steady at former prices and meeting with very fair sale in ordinary jobbing quantities.

Miscellaneous.—No change has taken place in the Olive Oil market, business being rather slow and at practically former prices, although importers claim to have stronger advices from Europe. Cocoanut Oils are also quiet, but fairly steady, at last week's prices. Red Oils rather slow. Tallow Oil also quiet.

Spirits Turpentine.—Prices have receded about 1½¢ from the highest point touched last week, the market feeling the weight of somewhat freer offering of stock, on spot and to arrive, coupled with rather smaller demand. The statistical position is strong, however, and the market is likely to respond to a revival of demand.

Mikado Pearl Agate Ware.

Manning, Bowman & Co., Meriden, Conn., and 57 Beekman street, New York, are introducing Mikado pearl agate ware.

Fig. 1.—Mikado Pearl Agate Ware Chafing Dish.

In the accompanying cuts, which show two articles made in Mikado pearl agate ware, the effect of the soft and agreeable color which is a distinctive feature of the

Fig. 2.—Mikado Pearl Agate Ware Tea Pot.

ware is lost. The regular undulating lines, alternately light and dark in shade, produce a very pleasing effect. The ware is white porcelain inside, having a delicate mottled Mikado tint outside, with ornamental stripes and edges of cherry red. It is referred to as having the same advantages in purity as their pearl agate ware, but is not placed upon the market as any substitute for the mounted pearl agate ware.

The Utility Blacking Cabinet.

Gilbert & Bennett Mfg. Company, Georgetown, Conn., New York and Chicago, are putting on the market this ingenious device, which is represented in the accompanying illustrations. The cabinet occupies but little room and when not in use is alluded to as an ornamental piece of furniture. It will be observed that a spring latch holds the door in place. Pulling down the latch releases the door, the descent of which brings everything into its proper place automatically. The iron holder which contains the blacking box is hinged so that when the door is again closed the foot rest striking the holder forces it upward and into its place. The leg is referred to self-adjusting and holds the foot rest firmly at a convenient hight. The brush and dauber have suitable places and are within easy reach. The cabinets are described as made of selected hardwood, finished in such a superior manner as to harmonize with fine interior wood work. It is stated that the metal is of attractive design, made from special patterns and sufficiently strong without being clumsy in appearance. Each cabinet is furnished with a bristle brush, a dauber and a large box of blacking, which are referred to as worth one-half the cost of the entire outfit. If necessary a bottle of ladies' shoe dressing can be kept in the cabinet under the dauber. The cabinet is readily fastened securely to the wall or wainscoting with screws, which are furnished with it. In many houses it

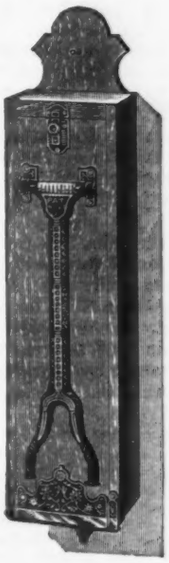


Fig. 1.—The Utility Blacking Cabinet Closed.

is suggested that the bathroom will be found a convenient place for the cabinet. The cabinet is made in oak, ash, cherry and black walnut with electro-bronze or

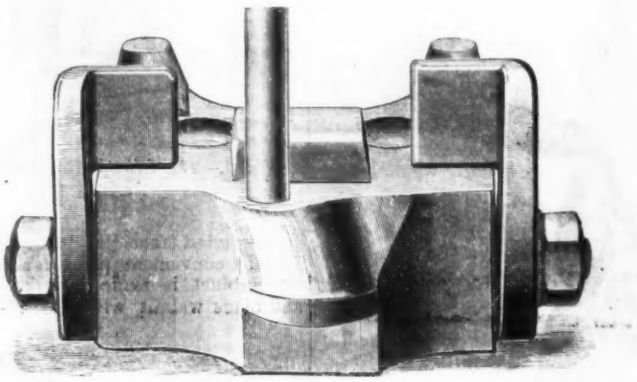
Fig. 2.—The Utility Blacking Cabinet Open.

nickel-plated trimmings. The cabinets are 28 inches long and weigh 10 pounds each.

The Ohio Legislature has passed a bill authorizing Cincinnati to expend $6,000,000 for water works.

Millers Falls Saw Set No. 1.

Millers Falls Company, 93 Reade street, New York, are introducing a saw set, as illustrated herewith. It consists of a cast-iron block, 2¼ inches long, 2⅛ inches wide and 1 inch thick, upon which are a chilled steel anvil and two low cast posts on which to rest the saw when setting. There is an upright steel post or guide, 4 inches high, placed $\frac{3}{16}$ inch from the edge of the anvil; together with adjustable guides, one on either side of the set. The cut represents the set in position for use, the post and adjustable guides nearest the operator. A flat piece of polished steel rounded at the ends, 10¼ inches long and 1¼ inches wide, is furnished with the set, with which to strike the tooth. This steel hammer is $\frac{1}{16}$ inch thick on one edge, and ⅛ inch thick on the other edge, allowing for use on both fine and coarse tooth saws. The anvil has a gradual slant from the back toward the standing guide post,



Millers Falls Saw Set No. 1.

and is somewhat rounded on the edge nearest the guides. Offsets are made near the bottom of the casting, to form a solid bearing when the set is clamped in a vise. Screw holes run through the casting to allow of the set being secured by screws if no vise is available. In operation the adjustable guides are set so that the saw teeth will come the required distance over the anvil to give them the desired set, and are fastened in position by the set screws. The saw is then laid on the set and the teeth struck successive blows with the flat piece of steel down the side of the upright post, the upright post guiding the blow to the right tooth, and also insuring a square blow on the tooth. It is claimed that the hardest saw may thus be set without danger of breaking the teeth, and that three or more teeth can be set in the time required to set one tooth with any squeeze set. It is also stated that this principle is the one followed in saw factories in setting saws.

The Rider Lightning Wrench.

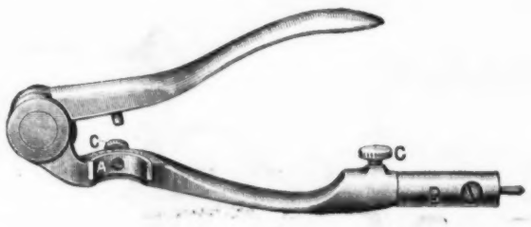
The Racine Wrench Company of Racine, Wis., have brought out a wrench which has a number of most excellent features.

The Rider Lightning Wrench.

An illustration is herewith given, which not only shows the form of the tool, but at the same time shows how it is operated in opening or closing the jaws quickly. The wrench, in the first place, has the usual screw adjustment, by which the jaws can be set to any desired degree of tightness. If, however, the operator wishes to open the jaws quickly, he merely pushes out the thumb screw from the bar, thus disconnecting the thread of the screw, when a concealed spiral spring running down in the handle forces the wrench open instantly to its full capacity. To close it quickly when open, the thumb screw is again pushed out clear of the bar, and the operator places his forefinger on the screw in the back of the bar, which he pulls down easily, closing the jaws tight or leaving them some distance apart, as he pleases. The manufacturers make the claim, which seems to be well founded, that much time is saved in the use of this device, as compared with the slow ratchet movement of the ordinary wrench. The tool is well and strongly made, the bar, the outer jaw and the thumb screw being of forged steel, while the inner jaw is of malleable iron, case hardened. Three sizes are made—10-inch, 12-inch and a small pocket or bicycle wrench, the last being either bright polished or nickeled. The jobbing trade can secure the tool through C. E. Woodruff, Northern Office Building, Lake and La Salle streets, Chicago.

Ideal Re and De-Capper.

Ideal M'f'g. Company New Haven, Conn., have recently placed on the market the device illustrated herewith.



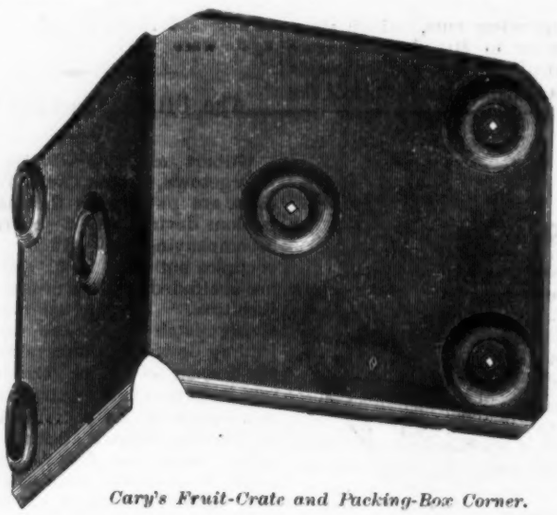
Ideal Re and De-Capper.

It is intended for rifle and pistol. The re-capper opens on the side. The die A rests upon a perfectly machined seat and is held in place with the screw C. The de-capping plug B is also interchangeable, being securely held by the knurled set screw C. Re-capping dies and de-capping plugs for any caliber from .22 to .50 will be furnished to fit the same tool. The levers are described as polished and nickel plated. This in contrast with the re-capping die, screws and de-capping plug, which are blued, is referred to as adding to the finish and appearance of the tool. The implement complete weighs 5 ounces.

Cary's Fruit-Crate and Packing-Box Corner.

Cary Mfg. Company, 41 and 43 Centre street, New York, are introducing this corner, as illustrated herewith. These are made in the flat, not bent as in the illustration, but are intended to bend at right angles after one end is nailed on. The notches on the side serve as a guide to nail the corner in the proper position, as well as to facilitate bending.

The corner is made of sheet metal, and is intended to reinforce the corners of crates or cases which are subjected to much handling in transportation; also on packing cases where great weight or strain comes on the sides or bottoms, causing them to bulge out. They may be nailed on with short nails, or, when put on before goods are placed in the case, clout nails may be used and clinched inside the box. The point is made that the corner is so constructed that the edges bind the wood very closely when nailed on, making a very rigid as well as handsome corner.



Cary's Fruit-Crate and Packing-Box Corner.

Incendiaries at New Orleans are persistent in their attempts to burn the cotton presses.

Cold-Handle Irons.

Heidel Mfg. Company, St. Louis, Mo., are putting on the market a new line of cold-handle irons, which are illustrated below. The family and laundry iron is

made in shape like the old-style flat iron with a detachable cold handle. The handle or top plate is described as so constructed as to allow the air to pass between the iron and top plate, and is referred to as preventing the handle from becoming warm and acting as a shield for the hand, protecting it from the heat of the iron. The simplicity of the handle and its durability are mentioned by the manufacturers. The family and laundry iron is manufactured three to a set, one polisher and two smoothing irons, with stand.

Their dressmaker's iron is manufactured

especially for dressmakers, manufacturers of jean goods, overalls, &c. They are made in shape and style similar to the tailor irons, only lighter in weight. These irons are described as made in shape to hold the heat longer and are better adapted for ironing seams, &c., than the common flat iron. The dressmaker's irons are made three to the set—8, 10 and 12 pounds—with stand.

The tailor iron is manufactured three to the set—12, 16 and 20 pounds—with

Fig. 1.—Heidel's Cold Handle Tailor Irons.

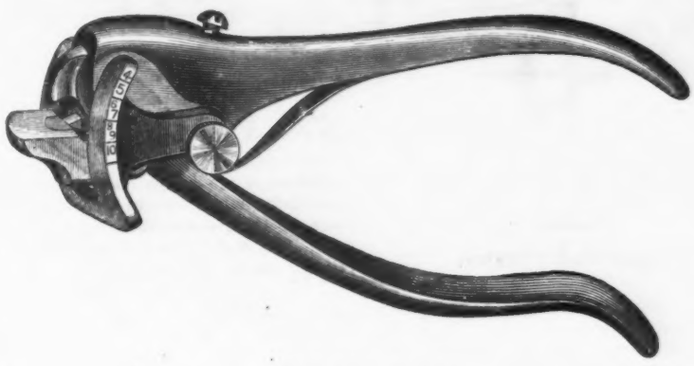
stand, lifter and two detachable cold handles, one with arm open, to be used on either of the iron bottoms for pressing inside seams, &c., and the other handle to be used on either of the iron bottoms for ordinary pressing. The lifter, above illustrated, which is furnished with this set of

Fig. 2.—Lifter Furnished with Heidel's Tailor Iron.

irons, is intended for lifting them in and out of the fire These cold-handle irons are put on the market with special claims for their strength and durability.

Lloyd Acme Saw Set.

Wm. J. Lloyd Mfg. Company, Philadelphia, Pa., have improved their Acme set, as illustrated herewith. The improvement consists in the addition of an adjustable screw, which is to prevent any mashing of the tooth. It is to be adjusted

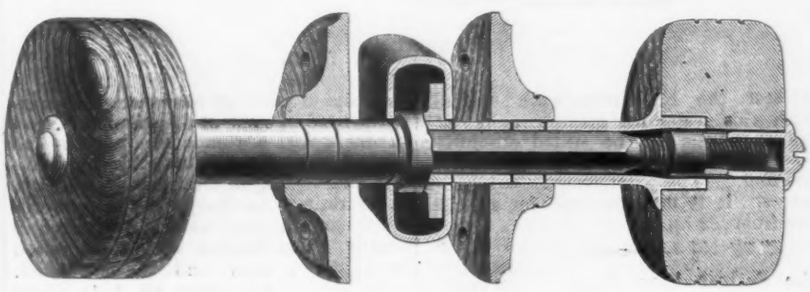


Lloyd Acme Saw Set.

to the thickness of the saw. This removes the objection brought against many sets that there is no way to regulate the amount of pressure put upon the handles. On account of the screw referred to above, the hammer of this set is permitted to engage the tooth of the saw sufficiently to only bend it, and having accomplished its object, more pressure cannot be brought on the tooth. It is explained that the set still contains the good points it originally had, the gauge on the side to assure the correct set of each tooth, the small adjusting screw to give the required amount of set and its extreme simplicity of construction. The sets are packed one each in a wooden box.

Self-Adjusting Door Knob.

C. F. Heim & Co., Shamokin, Pa., are manufacturing the door knob represented in the illustration herewith, which gives a good idea of its construction and application. Attention is called to the fact that no side screws are required in attaching this knob to the door. It is stated that the adjustment is to the hub of the lock and consequently requires no readjusting, as the swelling and shrinking of the door does not, it is claimed, effect the free working of the knob. The durability of the knob is pointed out in that it is substantially a bolt secured by a nut and binds



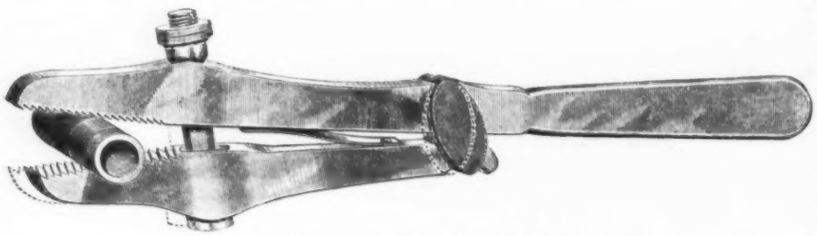
Self-Adjusting Door Knob.

the knob to the lock in such a way that it is claimed it cannot get loose. It is intimated that these knobs can be used with any style or make of locks and latches, the spindle being the same size as those used by all lock manufacturers. The rapidity with which these locks can be adjusted to doors is also referred to, together with the economy of labor thus secured. The knobs are made in all varieties of hard wood, bronze, porcelain, mineral, &c., but a specialty is made of wood knobs.

The proposed plan for the postal tube between France and England is to suspend two tubes, each about 3 feet in diameter, by means of steel cables thrown across the Channel, 120 feet above the level of the water.

The Curtis Pipe Wrench.

American Saw Company, Trenton, N. J., are offering this wrench, as illustrated herewith. It is described as having the diagonal teeth of the "alligator" wrench on both jaws, acting in opposite directions. The jaws are loosely connected by a swinging bolt and swinging link. On applying the wrench to the pipe the first motion swings the lower jaw backward, bringing the two jaws together quickly, thus making, it is claimed, the most secure grip possible. On the reverse motion it as quickly releases, and is ready for the first motion again. The point is made that the wrench is easily adjusted to different sizes, and takes many sizes of pipe on one adjustment. The statement is made that the wrench can be adjusted to take hold in a corner, or in any contracted space, and do the work satisfactorily.



The Curtis Pipe Wrench.

Ideal Bullet Seater.

The Ideal Bullet Seater represented herewith is offered by the Ideal Mfg. Company, New Haven, Conn. This bullet seater has an adjustable plunger, B, which can be set with check nut D to seat the ball any depth desired. With this seater the manufacturers state that the balls can be seated absolutely the same depth, thus insuring uniform shooting. The implement weighs 4 ounces. It is manufactured for all calibers from .22 up.

Ideal Bullet Seater.

The Eclipse Lawn-Mower Sharpener.

The Eclipse Tool Company, 80 Dearborn street, Chicago, Ill., are placing on the market the Eclipse Lawn Mower Sharpener, as illustrated in Fig. 1. Seeing the necessity of having a good lawn mower sharpener, the company advise us that they have spared no pains and expense in experimenting with all the different styles of lawn mowers, so as to secure a sharpener which can be adapted to any make. They are now convinced that they have a practical sharpener which, even in the hands of a novice who will follow the instructions which accompany each sharpener, can be operated successfully on any lawn mower. The sharpener is about double the size of the engraving, thus making it about 6 inches long. The weight is about 5 ounces, and it is made in several different patterns, some being constructed of wood and iron, while others are of a neat pattern of iron, constructed in such a way that the weight is no more than where partly made of wood. It consists of a body to which is fastened an adjustable gauge, and at the end of the body, at a bevel to fit the knives, a file is clamped together with a clip, which latter follows the underside of the knives when the sharpener is being used. This file is clamped in place by means of a set screw in the head of some of the sharpeners, and in others with a thumb screw at the tail of the block operating the clamp by means of a long casting at the back of the body. In operating the sharpener the mower is oiled, so that the knives will revolve readily. The driving wheels are raised from the ground and the sharpener, after setting the gauge so as to secure the proper bevel, is drawn toward the operator across the full length of the blade, the gauge being set against the bed knife or the brace rod, as shown in Fig. 2, the mower being reversed where the gauge follows the bed knife, and being in its proper position where it is operated on the brace rod. Up to the present time the manufacturers state that there has been no lawn-mower sharpener on the market, so that an expensive lawn mower, when once dulled, is practically useless, the spiral of the knives making it impracticable to sharpen well with a file, and that oil and emery get into the working parts so as to shortly wear them away. Among the special features claimed for this device by the manufacturers are: That the mower need not be taken apart; that it sharpens with a file having four cutting sides, so that one file will last a season; that when the gauge is once adjusted it is always ready for immediate use; that the machines can be sharpened by a novice in five minutes' time, and as neatly as if done in a factory, and that it is offered at a low price.

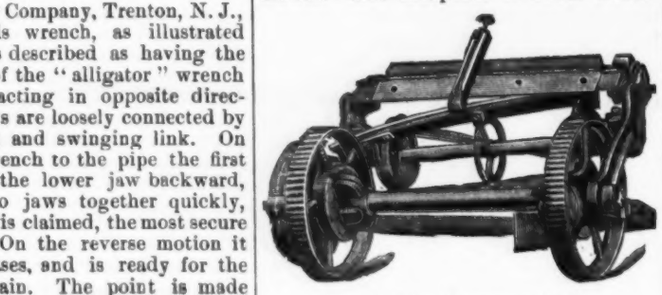


Fig. 2.—The Sharpener in Use.

Fig. 1.—The Eclipse Lawn-Mower Sharpener.

Acme Oil Filter.

Acme Filter Company, 714 North Main street, St. Louis, Mo., are manufacturing the oil filter represented in the accompanying illustrations, Fig. 2 giving, it will be observed, an interior view of the device. This filter is offered as an automatic, simple and durable one, and the manufacturers refer to the economy secured by its use. It is stated that it can be readily and quickly cleansed and has for its filtering medium animal bone black, the purifying qualities of which are mentioned. The point is also made that with this filter drip or dirty oil can be restored to its original color and condition. In operating the filter the filter check B, Fig. 2, is removed and the filter filled with water to mark on lower glass gauge. The filter check is then replaced and the oil to be filtered poured into receptacle A, when it passes down through filter check and tube into the water, which will precipitate dirt not caught by filter check, and the oil will rise by gravity through filtering material, when it can be drawn off through either of the

Fig. 1.—Acme Oil Filter.

Fig. 2.—Interior Construction of Acme Oil Filter.

two upper faucets shown in a thoroughly cleansed condition. D is a detachable pan that catches the dirt precipitated by the oil coming in contact with the water. E is a steam chamber by which oil and water may be heated and the filtering facilitated by injecting steam into nipple F and allowing it to escape through a like opening on reverse side. This feature, the manufacturers state, will be appreciated by those having thick oils to filter, or in cold weather, when all oils thicken more or less. The filter is made in three sizes, with 10, 25 and 50 gallons capacity. No. 1 filters 2 to 4 gallons per day; No. 2, 5 to 8 gallons, and No. 3, 12 to 16 gallons.

Landis' Patent Shelf Bracket.

The accompanying illustration represents this article, which is manufactured by Ezra F. Landis, Lancaster, Pa. It will be perceived that the device can also be used as a clothes hanger and towel rack, the hook *s s* and ring *x* being intended for these purposes respectively. This Bracket is referred to as applicable in any right-angled position. It will be seen that it can be fastened in a number of ways, screw holes *a a* being intended for the right side of window or door casing

Landis' Patent Shelf Bracket.

and *c c* for the left side, and slots *e e e* being designed for securing it as in the case of the ordinary Bracket. All the holes, countersinks and slots in this Bracket are described as neatly cast in. It is also stated that the side receptacles for screws are so arranged that they are opposite the slots, thus, it is claimed, compensating for the loss of strength entailed by the presence of the slots. The Bracket is made with or without the clothes hooks or ring. It was patented January 5, 1892.

Bull Dog Wire Nails.

James Pender & Co., St. John, N. B., have recently erected a large factory for the manufacture of wire nails, to be known as the Bull Dog brand. They advise us that a process has been discovered by them for treating the bright smooth iron nails by which their holding power is increased about 100 per cent. without injuring them in any way. The result of this treatment is a nail of dark color, thus being easily distinguished from the ordinary wire nail. The Bull Dog nail is referred to as combining all the good features of the smooth nail without any of the defects of the barbed nail, while its holding power is equal to or greater than the cut nail without the waste of the latter kind. The process has been patented by this company in Canada and the United States, and it it is proposed putting the nails on the market in all sizes from 8 inch spikes down. The plant is fully equipped with modern appliances, and it is stated that the wire recently made at these works was the first ever drawn in the Maritime Provinces. Before building the works and purchasing machinery, several weeks were spent in the United States by those interested, visiting the leading works in these lines and selecting from each the best machines in use. The works will be in charge of competent workmen of large experience from some of the best factories in this country.

Trade Publications.

THE WESTCOTT CHUCK COMPANY of Oneida, N. Y., have published a catalogue describing three styles of drill chucks and five styles of lathe chucks made by them. The jaws of all the Westcott lathe chucks are reversible, a valuable consideration, since it saves the cost of an extra set of jaws. These chucks have been long and favorably known.

WE HAVE RECEIVED from the Providence Steam and Gas Pipe Company of Providence, R. I., a circular describing the Grinnell Automatic Sprinkler and Fire Alarm. This system, as is well known, is designed to arrest a fire in its incipiency through the agency of the heat of the fire itself. It is automatic in every respect. Lines of pipes are carried through the building to be protected near the ceilings, from 8 to 10 feet apart. These are all connected with a larger pipe leading from the public water main, an elevated tank, or any source of supply that will keep the water in the pipes under pressure. To each of the lines of pipe the automatic sprinklers are attached about 10 feet apart. Should a fire occur the temperature rises sufficiently (160°) to melt the fusible solder, when the valve of the sprinkler is released and water showered on the fire. It is stated that this system has operated in 1151 fires, with no failures.

Advices from Newfoundland speak in detail of this season's seal fishing as uncommonly successful, the first trip to the "ice meadows" having been attended with great slaughter. Up to March 29 11 steamers had already returned out of a fleet of 20, four of them after an absence of only 13 days, bringing 101.000 seals, valued at $202,000. Seven others were well loaded, so that the aggregate catch numbered 209,000 seals, valued at $418,000, and all are off for a second trip, as the season is favorable. The steamer struck the seals three days after leaving St. John's, about 50 miles off the Horse Islands, filling up and returning to port within ten days. The rule is that one-third of the proceeds is divided among the men, of whom the fleet had about 4500, the captain getting as his perquisite 10 cents per seal.

The contractors for building a lighthouse on Diamond Shoals, off Cape Hatteras, have abandoned their work after expending nearly $100,000. In the effort to fulfill his contract, Captain Anderson built a caisson of iron and steel and towed it from Norfolk to the shoals, but in attempting to sink it the structure was totally wrecked and the men at work narrowly escaped drowning. A successful termination of the labor will place the contractor at the head of his profession, and this distinction will spur bidders to do their utmost.

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CURRENT HARDWARE PRICES.

APRIL 13, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.

Domestic.....₩ doz $3.00, 33⅓%
Excelsior.....₩ doz $10.00.....50&10&2%
North's.....list net @10%
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils.—

Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....11@11½¢
Armitage's Mouse Hole.....10½@11¢
Am. Wrought, Horseshoe brand.11@11½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Chenev Anvil and Vise.....25%
Alben Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See Parers, Apple, &c

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher, F. S. & W. Co.
Rockford Bit Company.
} 70&10@70 &10&5%

Cook's, Douglass Mfg. Co.....55%
Cook's, N. H. Copper Co.60&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32⅛ quarters, No. 5, $5; No. 30, $8.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&10%
Pugh's Block.....20%
Pugh's Jenning's Pattern.....4 ⅛
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....60%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits....30&10%

Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—

Clarks' small, $18; large, $26..35@35&10%
Ives' No. 4, ₩ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—

Common.....₩ gross $2.75@$3.25
Diamond.....₩ doz $1.25.....4 &10%
Bee.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co....30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—

Ives
French, Swift & Co.
Douglass'
} 33⅓@ 33⅓&10%

Bonney's Adjustable, ₩ doz $48....40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....60&5%
Universal Expansive, each $4.50.....20%
Wood's.....15@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls—

Awls, Sewing, Common.₩ gr. 85@90¢
Awls, Should. Peg.....₩ gr. $1.50@$1.55
Awls, Pat. Peg.....₩ gr. 85@$1.40
Awls, Shouldered Brad..₩ gr. $1.30@1.40
Awls, Handled Brad..₩ gr. $2.50@$3.00
Awls, Handled Scratch..₩ gr. $4.00@4.50
Awls, Socket Scratch..₩ doz, $1.10@$1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality, best brands.	$7.00 @	$7.50
First qual., other brands	6.62½ @ 6.75	
Second quality	6.00	6.50

Axle Grease—See Case, Axle.

Axles—

No. 1...3¼@4¼¢, No. 2, 5¢@6¢
Nos. 7 to 14.....6⅞&10%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
} 3% cash

Concord Axles, loose collar.....4¼@6¢
Concord Axles, solid collar.....5½@7¢
National Tubular Self-Oiling.....
33⅓@33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances.....40%

No.	2000	20	30
Chatillon, ₩ doz....	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Barb Wire.—See Wire, Barb.

Bars.

Crow—

Cast Steel.....₩ ℔ 3½¢
Iron, Steel Points.....₩ ℔ 3¢

Basins, Wash—

Standard Fiberware, No. 1, 10½-inch, $2; 12-inch, $2.25; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82...60&10@ 50&10&5%

Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—

Egg—

Dover.....₩ doz $1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)... ₩ doz $3.50
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $13.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.)....₩ gro $16.50
Spiral.....₩ gro $4.25 @ 4.50
Improved Acme (H. & R. Mfg. Co.)... ₩ gro $9.00
Paine, Diehl & Co.'s.....₩ gro $24.00
Silver & Co.....₩ doz $5.50

Culinary—

Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2.....20%

Bells—

Cow—

Common Wrought.....60&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Kentucky Durham.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%

Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank Cone's.....10%
Crank, Connell's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%

Electric,

Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—

Light Brass.....70&10%
Extra Heavy.....70
White.....70%
Silver Chime.....33⅓&10%
Globe Cone's Patent).....25&10@35%

Miscellaneous—

Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....60&10@60&10&5%
Molders'.....40&10&50%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@10@75&5%
Standard.....70&5@70&10%
Extra.....60&10@60&10&5%
N.Y.B.&P.Co., Carbon.....60%
N.Y.B.&P.Co., Diamond.....50%
N.Y B.&P.Co., Para.....40%

Bench Stops—See Stops, Bench.

Benders and Upsetters, Tire.

Ftoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—

Auger, Gimlet, Bit Stock Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1889... See Trade Report
Cleveland Block Co., Mat. Iron.....50%
Moore's Novelty, Mal. Iron.....50%
Sure Grip Steel Tackle Blocks.....25%

Boards, Stove.

Wood Lined Crystal.....50%
Oxidized.....45%
Embossed.....50%
Paper Lined Zinc.....55%
Crystal.....55%
Embossed.....55%
New Tacoma.....55%

Bolts—

Carriage, Machine, &c.—

Com. list June 10, '84.....75&10&2%
Genuine Eagle, Norway, list Oct., '84... 80@80&10%
Phila. pattern, list Oct. 7,'84..75@75&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890.....50&10&5% 75&10@75&10&5%
Bolt Ends, list Jan. 1, 1890.....

Door and Shutter—

Cast Iron Barrel, Square, &c.....70&10%
Cast Iron Shutter Bolts.....70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts 60&10@60&10&5%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, "..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....55&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B.K. Flush. Com'n " ...25&10%

Stove and Plow—

Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%

Tire—

Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84....80%

Borers, Tap.

Common and Ring.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....30&10@30%
Clark's.....33⅓@35%

Borax.....₩ ℔ 9½@10½¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔.....2½¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5%
Ball Braces, net.....$1.12 to $1.25
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Ball.....$1.10@$1.1
Barber's,
Nos. 10 to 16.....50@ & 10
Nos. 30 to 33.....5 @50&10%
Nos. 40 to 63.....50&10@5 $1 &5%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1 %
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—

Shelf, plain.
Regular list.....65@70%
Sargent's list.....66⅔@66⅔&10%
Shelf, fancy.
Sargen 's list.....66⅔@66⅔&10%
Other makes at a wide range of prices.

Bright Wire Goods—See Wire.

Broilers—

Heais' Self-Basting.	Inch.....	9	10	9x11
	Per doz..	$4.50	5.50	6.50

New Haven.....60%
Wire Goods Co.....65&10%
Morgan Odorless.....₩ doz $12, 33⅓%

Buckets, Well.

Galvanized—

Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.2
Iron Clad.....₩ doz. 14 qt, $4.25@$4.5
Helwig's Flat Iron Band.....$3.7
Helwig's Wired Top.....₩ doz $4.0

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers Butchers'.

Butts—

Brass—

Wrought Brass.....80@80&10%
Cast Brass, Tiebout's'.....60%
Cast Brass, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10

Cast Iron—

Fast Joint, Narrow.....50&10&5@60
Fast Joint, Broad.....50&10@60

Loose Joint,
Loose Joint, Japanned
Loose Joint, Jap. with Acorns..
Parliament Butts.
Mayer's Hinges
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips
} ..70&10@75%

Wrought Steel—

Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad
Loose Joint, Broad.
Table Butts, Back Flaps, &c ....
Inside Blind, Regular.
Inside Blind, Light.
Loose Pin.
} .70&10@75%

Bronsed Wrought Butts.....80%

Calipers—See Compasses.

Calks, Toe—

Gautier, One Prong, Blunt.....5½@6¢
Burke's, One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7½@8¢
Burke's, One Prong, Sharp.....6½@7¢

Can Openers—See Openers Can.

Caps—

Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
E. L. Waterproof, 1-10's.....35@37¢
E. B. Trimmed Edge, 1-10's.....47@50¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....47@50¢
Musket Waterproof, 1-10's.....50@55¢
G. D.....27@30¢
A. B. Genuine Imported.....45¢
Eley's E. B.....55¢ @ 58¢
Eley's D Waterproof, Central Fire...$1.00

Primers—

Berdan Primers, $1.00.....2%
U. L. Caps (for Sturtevant Shells) $1.00.....2%
All other Primers, $1.20.....2%

Cards—List January 28, 1891.

Watson's Cotton, Wool, Horse and File.....25%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sweepers Carpet.

Cartridges—

Rim Fire Cartridges.....50&5&2%
Rim Fire Military.....15&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Cent. Fire, Military and Sporting 15&5&2%
Blank Cartridges, except 22 and 32 cal., additional 10% on above discounts.
Blank Cartridges, 22 cal., $1.75.....2%
Blank Cartridges, 32 cal., $3.50.....2%
Primed Shells and Bullets.....15&5&2%
A. B. Caps, Round Ball, $1.75.....2%
A. B. Caps, Con. Ball, Swgd., $2.00.....2%

Casters—

Bed.....
Plate.....
Shallow Socket.....
} Brass....55@55&10%
} Others...60@60&10%

Deep Socket.....40&10%
Yale Casters, list May, 1884...30&10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....70%
Payson's Truck.....70%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....60%

Cattle Leaders—See Leaders, Cattle.

Cement.

Victor Elastic.....5 ℔ pails ₩ ℔ 5¢

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890.....60@ 60&10%

American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.60	5.45	4.45	3.80	3.65	3.50	3.40	3.25

Less than cask lots, add ¼¢ to ₩ ℔.
German Coil, list Oct. 6, 1890...60@60&5%
German Halter Chain, list Oct 6, 1890 60@60&5%
Covert Halter.....60&5%
Covert Traces.....55@55
Covert Heel Chain.....60&5%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—

White, case lots, ₩ gr 50¢; small lots 55 @56¢
Red, case lots...₩ gr 67¢; small lots 77 @78¢
Blue, case lots...₩ gr 75¢; small lots 86¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.

P. S. & W.
New Haven.
Witherby.
Mix.
} ..75 @ 75&10%

Co. Tool Co.
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.

Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔.....15@10%

Chucks—

Beach Pat.....each, $8.00.....20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Graham Patent.....33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tilton Union, each, 5 gal. $3.25; 7 gal. $3.75; 10 gal. $4.25.
McDermaid Star Barrel Churn, each 6 gal., $2.60; 10 gal., $2.75 15 gal. 3.00 20 gal., 3 25.

Clamps—
R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.
Butchers'.
Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—
Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16 65&5%
Superior Axle Clips.....66⅔&5@70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5½¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.
Hardware list.....50&2%

Coffee Mills—See Mills, Coffee

Collars, Dog, &c.
Medford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list.....30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company.....60&10@60%

Combs, Curry.
Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....20%
American Curry Comb Co.....Net prices

Compasses, Dividers, &c.—
Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord—
Sash.
Common.....₩ lb, 10¢ @ 11¢
Patent, good quality.....₩ lb, 12 @ 12½
White Cotton Braided, fair, ₩ lb, 24¼@25¢
Common Russia Sash.....₩ lb, 12½@13¢
Patent Russia Sash.....₩ lb, 14¢
Cable Laid Italian Sash.....₩ lb, 21@22½¢
India Cable Laid Sash.....₩ lb, 12½¢
Silver Lake—
A Quality, White, 50¢.....25 %
A Quality, Drab, 55¢.....25 %
B Quality, White, 30¢.....10 %
B Quality, Drab, 35¢.....10 %
Sylvan Spring Extra Braided White,34¢
Sylvan Spring, Extra Braided, Drab..32¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....28¢
Massachusetts, White.....26¢
Samson—
Braided, White Cotton, 50¢..30@30&5%
Braided, Drab Cotton, 55¢...30@30&5%
Braided, Italian Hemp, 55¢..30@30&5%
Braided, Linen, 80¢.....30@30&5%
Tate's Cotton Braided, White, ₩ lb, 28¢.10%
Wire Picture.
Braided or Twisted.....75&10%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—
Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—
Grain.....50&5&2@50&10&2%

Crayons.
White Crayons, ₩ gross.....10¢
D. M. Stewart Mfg. Co., Metal Worker, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—
Meat.
Dixon's ₩ doz.....40&5%
Nos.... 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's ₩ doz.....40&5%
Nos.....100 150
$15.00 $18.00
Hales Pattern ₩ doz.....70@70&5%
Nos.....11 12 13
$27.00 $33.00 $45.00
American.....30%
Nos.... 1 2 3 4 5
Each....$5 $7 $10 $25 $50 $60
terprise.....30%
Nos.....10 12 22 32 42
Each.....$3 $2.50 $4 $6 $15
at American Meat Cutter.....30%
Nos.... 112 116 118 120 122
Each....$2.00 $2.75 $3.00 $3.50 $4.00
Hiles' Challenge ₩ doz.....45@45&10%
Nos.....1 2 3
$32.00 $30.00 $40.00
Come No. .....₩ doz $26.00, 55&10%
Draw Cut, each:
Nos..5 2 6 8
$50 $75 $80 $225 .....20@25%
Beef Shavers (Enterprise).....20&10@30%
Little Giant (P. S. & W. Co.).....50%
Chadborn's Smoked Beef Cutter, ₩ doz $66.00
Tobacco.
Champion.....20&10@30%
All Iron.....₩ doz $4.25
Nashua Lock Co.'s..₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%
Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's, ₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Dampers, &c—

Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—
Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $12.50@14.00
Leed's.....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz. 15.00
Kohler' New Champion.....₩ doz. $9.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $34.00
Cronk's Post Bars, ₩ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger.....₩ doz $15 00
Imperial.....₩ doz $7.50
Shimer's Hollow Handle, ₩ doz, $24..50%

Dividers—
See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.
Money, ₩ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll s.....25%
Ratchet, Parker's.....20@20&5
Ratchet, Whitney's.....30&10%
Ratchet, Weston's.....30@25%
Ratchet, Moore's Triple Action..25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85
Twist Drills—
Cleveland.....50&10&5%
Diamond, W. & B.....50&10&5%
Graham's Pat. Groove Shank 50&10&5%
Morse.....50&10&5%
Ratchet, Whitney's.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%

Drill Bits or Bit Stock Drills—
See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans—See Pans, Dripping.

Drivers, Screw.
Douglas Mfg. Co.....20@20&10%
Disston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles.....65&10%
No. 86.....70&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....66⅔&10&10%
P. S. & W.....70 %
Knapp & Cowles:
No. 1.....60&20&70%
No. 2.....60&10&10@70&5%
No. 3.....60&5@60&10%
Nos. 4 and 00, Acme and Ideal..50& 5@50&10&5%
Stearns'.....25&10@25%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₩ doz $6.00,25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits ₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits.....

Egg Heaters.—See Heaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.—

	No. 4 to 46 gr.	No. 54 to 150 gr.	Flour, CF F, FF.
Kegs, ₩ lb	4½¢	5 ¢	2½¢
½ kegs, ₩ lb	4¾¢	5¼¢	2¾¢
¼ kegs, ₩ lb	5 ¢	5½¢	3 ¢
10-lb cans, 10 in case	6 ¢	6¼¢	5 ¢
10-lb cans, less than 10	10 ¢	10 ¢	

Enameled and Tinned Ware See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Expanded Metal.
List No. 5.
Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Extractors, Lemon Juice—See Squeezers, Lemon.

Fasteners, Blind—

Mackrell's, ₩ dos, $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Austin & Eddy No. 2008 ₩ gr.....10.00
Security Gravity, ₩ gr.....9.00
Zimmerman's.....45 %

Faucets,—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@ 60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $36.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—
Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—
Domestic—
Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75%
(extra prices on certain sizes)
G. & H. Barnett (Black Diamond).....60&10@60&10&5%
Arcade.....60&10@60&10&10%
Eagle.....60&10@60&10&10%
Other makers, best brands60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chesnea Horse Rasps, Hand Cut...50&10%
Arcade Horse Rasps.....60&10%
Imported—
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%

Fixtures.
Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—
Hay, Manure, &c., Asso List..65&5@65&10%
Hay, Manure, &c., Phila. List. 60@60&5%
Plated, see Spoons.

Frames—
Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%
Screen, Window and Door—
Porter's Pat. Window and Door Frame.....33⅓&10%
Warner's Screen Corner Irons..33⅓@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%
Cortland.....40@40&5%

Freezers, Ice Cream—
White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....60%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless.....60&10%
Giant.....60%
Zero.....60&10&10%
Boss and Pet.....60&10&10&10%
Keystone, P. D. & Co., each $1.50.....30%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.
Gersdorff's Perfection, Standard and Globe; Tin, 1 gro., 10 %; 2 to 5 gro., 20 %; 5 to 10 gro.....30 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....25 %

Furnaces, Soldering.
Burgess No. 3 Gem, tin reservoir....$7.00
Burgess No. Gem, copper reservoir, 8.50

Fuse—Dis. 12½%. ₩ 1000 ft
Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 2.25
Single Taped Fuse, for wet ground.. 3.25
Double Taped Fuse, for very wet gr. 4.25
Triple Taped Fuse, for very wet gr.. 5.50
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—

Stebbin's Pattern.....30@30&5%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Sush's.....30%
Lincoln's Pattern.....70@70&10%
Weed's.....30&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.
Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch.....25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....30&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....30%
Wire, Brown & Sharpe's.....10@20%
Wire, P. S. & W. Co.....10&10

Gimlets—
Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₩ gr $12.....25@55&5%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Improved Process.....25@25&5%
Dodd's Liquid Glue.....25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.
Fraser's.....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $9.50
Dixon's Everlasting, in bxs...₩ doz 1 lb $1.50; 2 lb $2.00
Dixon's Everlasting....10-lb pails, ea. 55¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—
Small, at factory.....₩ ton $7.50@8.00
Family, regular list.....60%
Family, Cleveland Stone Co.....30 %

Grindstone Fixtures—See Fixtures Grindstone.

Hack Saws—See Saws.

Hafts, Awl.
Sewing, Brass Fer. ₩ gr, $3.50.....45&10%
Pat. Sewing, Short, $1.00 ₩ doz.....40&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top. ₩ gr $10.00.....45&10%
Pat. Peg, Leather Top. ₩ gr $12.00.45&10%

Halters.
Covert's, Rope, Jute.....60&10&10&2%
Covert's, Rope, 7-16-in., Jute.....70&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
E. Covert Mfg. Co.'s Halters.....33⅓%
E. Covert Mfg. Co.'s Horse and Cattle Ties.....33⅓

Hammers—
Bundled Hammers—
Maydole's, list Dec. 1, '85.....35&10@35%
Buffalo Hammer Co.
Humason & Beckley
Atha Tool Co.
Verree.....50@50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumb.
Artisans' Choice, A. E. Nail..40&10%
Regular Y. & P., A. E. Nail.....50%
Horseshoe Turning Hammers.....50%
Other Hammers.....50&10%
Cheney's Claw.....40&10%
Cheney's Machinist's & Riveting.50&5%
Hartford, Nail Hammers.....40&2%
Hartford, Machinists, &c...50@@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....30@30
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
3 ₩ and under.....₩ ₩ 40¢
3 to 5 ₩.....₩ ₩ 36¢ } 70@70&10%
Over 5 ₩.....₩ ₩ 30¢
Wilkinson's Smiths.....10¼@11¢₩ ₩

Handcuffs and Leg Irons—See Police Goods,

Handles—
Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ₩ pr., 38¢; No 3, 18¢; No. 6, 15¢; No. 2 and No. 4, Reversible, 18¢.
Champion.....18¢
Irons, Wrought or Cast—
Door or Thumb.
Nos..... 0 1 2 3 4
Per doz....$0.90 1.00 1.10 1.35 1.50 50&10&
Goggin's Latches.....₩ doz 30@33
Bronze Iron Drop Latches..₩ doz 70¢ net
Tap'd Store Door Handles—Nuts, $1.62
Plate, $1.10; no Plate, $0.88.....net
Barn Door, ₩ doz $1.40.....10&10%
Chest and Lifting.....70%
Wood—
Saw and Plane.....40&10@40&10&5
Hammer, Hatchet, Axe, &c....40@40&5%
Brad Awl.....₩ gr $2.00
Hickory Firmer Chisel, ass'd..₩ gr 4.50 } 50@
Hickory Firmer Chisel, large..₩ gr 5.00 } 50@
Apple Firmer Chisel, ass'd...₩ gr 5.00 } 50@
Apple Firmer Chisel, large...₩ gr 6.00 } 50@
Socket Firmer Chisel, ass'd...₩ gr 3.00 } 50@
Socket Framing Chisel, ass'd. ₩ gr 5.00 } 50@
I. B. Smith & Co.'s Pat File.....60
File, assorted.....₩ gr 2 75
Auger, assorted.....₩ gr 5.00 } 50%
Auger, large.....₩ gr 7.00
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass.....₩ set $1.25
Pat. Auger, Swan's.....₩ set $1.00
Hoe, Rake, Shovel, &c.....60&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
J. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Climax Anti-Friction.....55%
Climax Anti-Friction for Wood Track55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling.....50@50&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....50&10@60%
Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ₩ dos pr. 4 in, $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50@5%
Wood Track Iron Clad, ₩ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ₩ set $6.00.....20%
Eclipse.....20&10%
Felix, ₩ set $4.50.....20%
Richards'.....30@30&10%
Lane's Standard.....50&5&50&10%
Lane's New Standard.....50@50&5%
Lane's Parlor.....40%
Ball Bearing Door Hanger..30&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, ₩ set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel Cast Iron.....50%
Nickel, Malleable Iron and Steel 40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%
Pendulum, Payson's.....40%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's
Hunt's
Hurd's
Mann's
Peck's
Underhill's
} 40 & 10 @ 50&5 %
Buffalo Hammer Co.
Fayette R. Plumb.
C. Hammond & Son.
Kelly's.
Sargent & Co.
P., S. & W. Co.
Ten Eyck Edge Tool Co.
Collins.....10%
Schulte, Lohoff & Co.....60@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's Nos. 1, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible....70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1¼, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%

Gate Hinges—

Western.....₩ dos $4.40, 60%
H. E.....₩ dos $7.00, 55%
H. E. Reversible.....₩ dos $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
W. Y. State.....₩ dos $5.00, 55&10%
Automatic.....₩ dos $12.50, 50%
Shepard's.....60&10&5%

Spring Hinges—

Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March 1886.....2%
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent.....40%
Acme.....30%
U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem, and Star.....20%
Oxford.....20%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....60%
Reliable.....60%
Champion.....60%
Stearn's.....50&10%
Samson, ₩ gross.....$14.00
} Extra 50@10 often given.

Wrought Iron Hinges.

List February 14, 1891.
Strap and T.....50&10%
Corrugated Strap & T.....50@50&10%
Screw Hook and Strap.....
6 to 12 in., ₩ D., 4¢
14 to 20 in., ₩ D.,3½¢
22 to 36 in., ₩ D., 3¢
Screw Hook and Eye.....
⅜ in., ₩ D 7½¢
½ in., ₩ D 5½¢
⅝ in., ₩ D 4½¢
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges { 8, 10 & 12 in., ₩ D.....5¢
"Providence" { over 12 in., ₩ D.....4¢

Hoes—

Eye—

D. & H. Scovil.....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co.,S.& O. Pat. / Am. Axe and Tool Co., S. & O. Pat. } 70@70& 5%
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60&10%

Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton &c.....70%
Warren Hoe.....60%
Magic.....₩ dos $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₩ dos $18.....60%

Bit.

Extension,
Barber's, ₩ dos $15.00.....40@40&10%
Ives, ₩ doz $20.00.....60&5@60&10%
Diagonal.....₩ dos $24.00, 40%
Angular.....₩ dos $24.00, 40&5%

File and Tool—

Bals Pat.....₩ dos $4.00; 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list.....
Bird Cage, Reading.....
Clothes Line, Sargent's list..
Clothes Line, Reading list.
} 60&10&10%
60&10@60&10&10%
Ceiling Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%

Wrought Iron—

Cotton.....₩ dos $1.25
Cotton Pat. (N.Y.Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)...50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886.....60@60&10%
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat...45@45&5%
Wire Coat and Hat, Standard.60@60&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80@80&10%
Atlas, Coat and Hat.....60@60&10%
Bright Wire Goods, see *Wire.*

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₩ dos $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks.....See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition.....75@75&10&5%
Standard.....60&10&10@70&10%
Extra.....60@60&10%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee....50&10 @ 60%

Huskers—

Blair's Adjustable.....₩ gr $8.00
Blair's Adjustable Clipper.....₩ gr 7.00
Hubbard's Solid Steel.....₩ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory....₩ 100 lb. $2.30@$2.40
Self-Heating.....₩ doz $9.00 net
Self-Heating, Tailors'....₩ dos $18.00 net
Mrs. Pott's Irons.....60@60&10%
Enterprise Star Irons.....60@60&10%
XX Cold Handle Sad Iron.....50&5@60%
Ideal Irons new list.50&10@50 & 10&10%
Salamander, Irons.....25%
B. B. Sad Irons, ₩ lb.....3 @3½¢
Combined Fluter and Sad Iron, ₩ dos, $15.00.....15%
Fox Reversible, Self-Fluter ₩ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8¼¢, 15%
New England.....8¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓ %
National Self-Heating.....30 %

Soldering—

Soldering Coppers.....₩ lb 19 @ 21¢
Covert's Adjustable, list Jan. 1 1886. 35&2%

Irons, Pinking, per dos., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

Kettles—

Brass, Spun, Plain, list Jan. 1, '91..25&5%
Brass, Spun, Pld.W.M.list Jan. 1, '91.20%
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....₩ dos $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives, List Dec. 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's AAA1, Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in., $2.00; 7 in., $2.70; 8 in., $3.80, &c.
Ames' Shoe Knives.....20@25%
Ames' Bread Knives.₩ dos $1.50, 15@20%
Moran's Shoe and Bread.....30%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat. $2.00
Corn, Auburn Mfg. Co. Crescent....$3.50

Corn—

Bradley's.....10%
Wadsworth's.....25%

Drawing—

Witherby.....
P. S. & W.....
Mix.....
New Haven.....
} .75 @ 75&10 %
Merrill.....60&10@60&10&5%
Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....30&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Hay and Straw—

Lightning, from jobbers....$8.00 @ $9.00
Wadsworth's.....40&7½@40&10%
Carter's Needle.....₩ dos $11.00@$11.50
Heath's.....₩ dos $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw.....40%
Nolin's Hay.....₩ dos.$7.00 @ $8.00

Mincing.

Am. (3d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....30&10%
Smith's, ₩ dos, Single, $2.00; Double, $3 40@45%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable.....₩ dos $3.00 25%
Buffalo Double Adj'table.₩ dos $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....₩ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladles.—

Melting, Sargent's.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...₩ dos $4.00, 40%
Melting, P. S. & W.....35&10&10%
Melting, Warner's.....30%

Lanterns—

Tubular—

Plain with Guards, ₩ dos.....$3.75@4.00
Lift Wire, with Guards.....$4.00@4.25
Square Plain, with Guards....$3.75@4.00
Sq. Lift Wire, with Guards.....$4.50

Police Lanterns (including packages).

2¼-inch Bull's-eye Police regular. ₩ dos $3.60
3-inch Bull's-eye Police regular. ₩ dos $3.90
2¾-inch Bull's-eye Police flash light. ₩ dos $4.00
3-inch Bull's-eye Police flash light. ₩ dos $4.50

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason, Beckley & Co.'s.....70%
Sargent's.....66⅔&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....55%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Feb. 20, 1891.
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60&10%
Imperial.....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gro.....25
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton.....40%

Wire Clothes.. Nos.	19	18	20
100 ft.	$3.50	$3.00	$3.50

Ventilator Cord, Samson Braide White or Drab Cotton..₩ dos $7.50 20%

Links, Open.

Terry's—per gro.:

Nos.	1	2	3	4
	$6.00	8.00	12.00	16.00

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85...33⅓&2%
Delts, Nos. 36 to 39.....40%
Delts, Nos. 51 to 63.....40&10%
Delts, Nos. 86 to 96.....30%
Stoddard Lock Co.....30&33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....35&2%
"Champion" Cab. and Combin...33⅓%
Yale.....net prices
Romer's.....35%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 30, 1889. } 65&10@70%. Much lower net prices often made.
Mallory, Wheeler & Co., list July, '88.
Sargent & Co., list Aug. 1, '88
Reading Hardware Co., list Feb. 2, '88.
Branford Lock Works.
Brittan, Granam & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Delts Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&2%
Romer's Night Latches.....15%
Brooklyn Latches.....50&10%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

Padlocks—

List June 10, 1891.....50&2%
Norwich Lock Mfg. Co., old list....70&2%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....25&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 606..15%
A. E. Delts.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....60%
Horseshoe.....₩ dos, $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian, Nos. 119, 120, 130 and 140.....90&10%
Other Nos.....65%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker Barry & Co.
No. 1010 line.....35&5%
No. 41 line.....45&10%
No. 61 line.....50&5%
No. 21 line.....75%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₩ gr.. .33⅓%
Ferguson's.....33⅓%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....35&33⅓%
Reading.....60%&10@60%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'sed.....₩ gr $4.00
Common Sense, Nickel Plated ₩ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....35&5&2%
Stoddard "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Fish (Lieschе's pat.), No. 100, ₩ gr., $8; No 108, ₩ gr., $10.....30%
Davis, Bronze, Barnes Mfg. Co.....50%
Champion Safety, list January, 1889..70%
Security.....70%
Giant, list Jan., 1892.....70&5%

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles...₩ dos, $1.75; ₩ gross.....$17 00

Machines.

Boring—

	Without Augers.	Upright.	Angular,
Douglas	$5.50	$6.75	.....50%
Snell's, Rice's Pat.	5.50	6.75	40&10&10%
Jennings	5.50	6.75	45@45&10%
Other Machines...	2.35	2.75	.....
Phillips' Patent with Augers	7.00	7.50	.....
Miller's Falls	7.50	.....	35%

Fluting.

Knox, 4¼-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3¼-inch Roll, $2.15.....35%
Eagle, 5¼-inch Roll, $2.85.....35%
Crown, 4¼ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₩ dos $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₩ dos 15 00.....40%
Shepard Hand Fluter, No. 110 ₩ dos $11.00.....40%
Shepard Hand Fluter, No. 95 ₩ dos $8.00.....40%
Clark's Hand Fluter.₩ dos $15.00.....35%
Combined Fluter and Sad Iron, ₩ dos $15.00.....30%
Buffalo ₩ dos $10.00.....10%

Hoisting—

Moore's Hand Hoist, with Lock Brake.....30%
Moore's Differential Pulley Block....40%
Energy Mfg. Co's.....25%
Sure Grip Steel Tackle Blocks.....35%

Washing—

Anthony Wayne, ₩ dos No. 1, $51 No. 2, $45; No. 3, $42.
Western Star ₩ dos No. 2, $45; No. 3, $48
Weisel.....₩ doz $54.00
Fair and Squar.....₩ doz $42 00

Mallets.
Hickory ..... 20&10@20&10&10%
Lignumvitæ ..... 20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. ..... 30@30&10%

Mattocks. Regular list. 60&10@60&10&5%

Measures—
Standard Fiberware, No. 1, peck, ₩ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Menders, Harness—
Per doz. $2.00

Mills.
Coffee—
Box and Side, List Jan. 1, 1888, 60@60&10%
Net prices are often made which are lower than above discount.
American, Enterprise Mfg Co. 20&10@30%
The Swift, Lane Bros. ..... 30&10%

Mincing Knives—See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers—See Drawers, Money.

Mowers, Lawn.
Pennsylvania, Philadelphia, New Model, Excelsior, Continental, &c. ..... 60&10%
Other Machines ..... 60&10&10@75%

Muzzles—
Safety ..... ₩ doz, $3.00, 25%

Nails.
Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15, '89, 75&10@80%
Tack Mfrs.' list ..... 70@70&10%
Wire Nails, Standard Penny.
Card June 1 '89 base ..... $1.95 @ $2.00

Horse—

Nos.	6	7	8	9	10	
American	8¾	8¾	8¾	8¾	8¾	net
Auburn	28c	26c	25c	24c	23c.	

40&5&5&2%

Clinton, Fin.	19¢	17¢	16¢	15¢	14¢	30&10%
Essex	28¢	26¢	25¢	24¢	23¢.	

40&10&5&2%

Lyra	19¢	17¢	16¢	15¢	14¢	40&5 %
Snowden	19¢	17¢	16¢	15¢	14¢.	40&5 %
Putnam	23¢	21¢	20¢	19¢	18¢.	

1000 ℔ in year 15%

Vulcan	23¢	21¢	20¢	19¢	18¢	25%
Northwest'n	25¢	23¢	22¢	21¢	20¢.	

25@25&5%

A. C.	25¢	23¢	22¢	21¢	21¢.	

25&10@33⅓&5%

C. B.-K.	25¢	23¢	22¢	21¢	21¢.	

25&10@33⅓&5%

Maud S.	25¢	23¢	22¢	21¢	21¢.	

40&10&5 %

Champlain	28¢	26¢	25¢	24¢	23¢.	

40&5&2%

Saranac	23¢	21¢	20¢	19¢	18¢	40&5%
Champion	25¢	23¢	22¢	21¢	20¢.	

10&10&10%

Capewell	19¢	18¢	17¢	16¢	16¢	10%
Anchor	23¢	21¢	20¢	19¢	18¢	35%
Western	23¢	21¢	20¢	19¢	18¢	50%

Empire Bronzed. ..... 14 ₩ ℔.

Picture—
Brass Head, Sargent's list ..... 50&10&10%
Brass Head, Combination list ..... 50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Niles' Patent 40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—List Dec. 18, 1889.

	Square.	Hex.
Hot Pressed	5.35¢	5.95¢ off list.
Cold Punched	5.00¢	5.10¢ off list.

In packages of 100 ℔, add 1-10¢ ₩ ℔. net; in packages less than 100 ℔, add ¼¢ ₩ ℔, net.

Oakum—
Best or Government ..... ₩ ℔ 7@7¼¢
U. S. Navy ..... ₩ ℔ 6@6¼¢
Navy ..... ₩ ℔ 5¼@6¢

Oilers—
Zinc and Tin ..... 65&10@70&5%
Brass and Copper ..... 50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₩ doz. 10&10&5%
Malleable, Hammers, Old Pattern, same list 40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass 50%
Olmstead's Tin and Zinc 60%
Olmstead's Brass and Copper 50%
Broughton's Zinc 60%
Broughton's Brass 50%
Gem P. D. & Co. ..... ₩ gro. $2
Steel, Draper and Williams 50%

Openers, Can.
Messenger's Comet ..... ₩ doz $3.00, 25%
American ..... ₩ gross $2.75@$3.00
Duplex ..... doz 25¢, 15@20%
Lyman's ..... ₩ doz $3.75, 20%
No. 4 French ..... ₩ doz $2.25, 55@60%
No. 5, Iron Handle ..... ₩ gr $6.00, 45@50%
Eureka ..... ₩ doz $2.50, 10%
Sardine Scissors ..... ₩ doz $2.75@3.00
Star ..... ₩ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50- 50&10&10%
Excelsior No. 1 $2.50; No. 2, $1.50 ..... 40%
World's Best, ₩ gross, No. 1, $12.00- No. 2, $24.00; No. 3, $36.00 ..... 50&10%
Universal, ₩ doz $3.00 ..... 55&5%
Domestic, ₩ doz $2.50 ..... 45%
Champion ₩ doz $2.00 ..... 5C %

Packing, Steam—
Rubber—
Standard ..... 70&70&10%
Extra ..... 60@60&5%
N. Y. B. & P. Co., Standard 50%
N. Y. B. & P. Co., Empire 60%
N. Y. B. & P. Co., Salamander 25%
Jenkins' Standard. ₩ ℔ 30¢ ..... 25@25&5%

Miscellaneous—
American Packing ..... 10¢@11¢ ₩ ℔
Russia Packing ..... 14¢ ₩ ℔
Italian Packing ..... 13¢@14¢ ₩ ℔
Cotton Packing ..... 15¢@17¢ ₩ ℔
Jute ..... 7¢@8¢ ₩ ℔

Pails.
Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₩ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₩ ds.	3.00	3.25	3.75
Helwig's	2.50	2.75	3.00
Sidney Shepard & Co.	2.35	2.85	3.05
Iron Clad	2.50	2.75	3.00
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.
Indurated Fibre Ware—25%
Star Pails, 12 qt ..... ₩ doz $5.40
Stable and Milk, 14 qt. ..... ₩ doz $6.00
Fire Pails, deep ..... ₩ doz $5.40
" round bottom ..... ₩ doz $7.80
Standard Fibre Ware—

	Plain.	Deer'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14-qt	6.50	7.50

Pans.
Dripping.
Smalls 1sts ..... ₩ ℔ 6¼¢
Large sizes ..... ₩ ℔ 5¾¢
Silver & Co. (Covered) 40%
Fry—
Standard List:

No.	0	1	2	3	4
₩ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₩ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods ..... 75@75&10%
Acme Fry Pans ..... 60&10%
Dust—
Steel Edge, No. 1 ..... ₩ doz $1.75

Paper and Cloth—
Sand and Emery—
List April 19, 1886 ..... 50@50&10%
Sibley's Emery and Crocus Cloth 30%

Parers.
Apple.
Advance ..... ₩ doz $4.75
Baldwin ..... ₩ doz 5.25
Bonanza ..... each 5.00
Daisy ..... ₩ doz 4.00
Dandy ..... each 7.50
Eclipse ..... ₩ doz 4.25
Eureka, 1888 ..... each 16.00
Family Bay State ..... ₩ doz 12.00
Favorite ..... ₩ doz 5.00
Gold Medal ..... ₩ doz 4.00
Ideal ..... ₩ doz 4.00
Improved Bay State ..... ₩ doz $7.00 @ 30.00
Little Star ..... ₩ doz 4.50
Monarch ..... ₩ doz 13.50
New Lightning ..... ₩ doz 5.50
Oriole ..... ₩ doz 4.00
Penn ..... ₩ doz 4.00
Perfection ..... ₩ doz 4.00
Pomona ..... ₩ doz 4.00
Rocking Table ..... ₩ doz 6.00
Turn Table ..... ₩ doz 4.50
Victor ..... ₩ doz 13.50
Waverly ..... ₩ doz 4.00
White Mountain ..... ₩ doz 4.00
72 ..... ₩ doz 4.25
78 ..... ₩ doz. 7.00
Potato—
White Mountain ..... ₩ doz $4.50
Antrim Combination ..... ₩ doz $5.50
Hoosier ..... ₩ doz $13.50
Saratoga ..... ₩ doz $5.50

Pencils—
Faber's Carpenters' ..... high list 50%
Faber's Bound Gilt ..... ₩ gro $5.25
Dixon's Lead ..... ₩ gro $4.50
Dixon's Lumber ..... ₩ gro $6.75
Dixon's Carpenters' 10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00 ..... 60&10@60&10&5%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.
Bow—
Humason, Beckley & Co.'s ..... 60&10%
Sargent & Co's ..... $17 and $18 ..... 60&10%
Peck, Stow & W Co. ..... 50&10&50&10&5%
Curtain—
Silvered Glass ..... net
White Enamel ..... net
Escutcheon,
Iron, list Nov. 11, 1885 ..... 50&10@50&10&5%
Brass ..... 60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.

¼ and under. Plain	60@60&5%
¼ and under, Galvanized	50@5 &5%
¼ and over. Plain	70@70&5%
¼ and over, Galvanized	60@60&5%

Boiler Tubes.
Sizes up to 2¾ in. inclusive ..... 57½@60%
Sizes 3 in. and larger ..... 60@55%
Casing 55%
Inserted Joints Casing 50%
Steel Boiler Tubes 30%

Planes and Plane Irons—
Wood Planes—
Molding ..... 40&10%
Bench, First Quality ..... 50&10%
Bench, Second Quality ..... 55&10%
Bailey's (Stanley R. & L. Co.) ..... 55&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.) ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 25&10%
Steer's Iron Planes ..... 35@35&10%
Meriden Mal. Iron Co.'s ..... 40@40&10%
Davis's Iron Planes ..... 40@40&10%
Birmingham Plane Co. ..... 50@50&10%
Gage Tool Co.'s Self-Setting ..... 30&10&10%
Chaplin's Iron Planes ..... 40@40&10%
Sargent's ..... 30&10@30&10&10%
Standard Tool Co. ..... 50@50&5%
Plane Irons—
Butcher's ..... $5.00@$5.25 to 2
Buck Bros 30%
Auburn "Thistle" ..... 30&10%
Ohio ..... 30&10%
Sandusky ..... 30&10%
S. & I. J. White 25%
Stanley R. & L. Co ..... 50&10%

Plates.
Fellos ..... ₩ ℔ 6¢@6¼¢

Pliers and Nippers.
Button's Patent ..... 50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₩ doz 40%
Humason & Beckley Mfg. Co. 50@50&10%
Lindsay's Giant 40%
Gas Pliers 60%
Gas Pliers, Custar's Nickel Plated. 60&5%
Eureka Pliers and Nippers 40%
Russell's Parallel 25%
P. S. & W. Cast Steel 50%
P. S. & W. Tinners' Cutting Nippers, add 5% dis 10%
Carew's Pat. Wire Cutters 20%
Morrill's Parallel, ₩ doz, $12.00 ..... 30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 5%&50&5%
Cronk's Button Pattern ..... 50&10&60%
Cronk's Carrier Pliers ..... 60@60&5%

Planes and Levels—
Regular List ..... 75&10@75&10&5%
Stanley's Duplex ..... 20&10%
Stanley's Handy ..... 20&10%
Disston's 50%
Pocket Levels ..... 70&10@70&10&10%
Davis Iron Levels 30%
Davis' Inclinometers ..... 10&10%

Poachers.
Egg.
Buffalo Steam Egg Poachers, ₩ doz, No. 1, $6.00; No. 2, $9.00 ..... 25%
Silver & Co., 6-Ring, ₩ doz $4; 8-Ring $2

Pokes, Animal—
Bishop's I. X. L. ..... ₩ doz $6.00
Bishop's O. K. ..... ₩ doz $5.25
Bishop's Pioneer ..... ₩ doz $3.75
Bishop's American ..... ₩ doz $2.75
Eagle, Double Stale ..... ₩ doz $5.75
Eagle, Single Stale ..... ₩ doz $3.75
Buckeye, Single Stale ..... ₩ doz $2.75
Bo ding ..... ₩ doz $4.00

Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₩ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₩ doz 10%
Tower's 25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₩ doz $48.00; Nickeled, $57.00; 3 Hands, Polished, ₩ doz $72.00; Nickeled, $84.00 ..... 25%
J. P. Lovell's Police Goods 25%

Polish, Metal.
Prestolite 30%
Prestotine Paste 33⅓%
Gaston's Silver Compound 33⅓%

Polish, Stove.
Joseph Dixon's ..... ₩ gro $6.00, 10%
Gem ..... ₩ gro $4.50, 10%
Gold Medal ..... ₩ gro $6.00, 25%
Mirror ..... ₩ pro $6.00, —%
Lustro ..... ₩ gro $4.75
Ruby ..... ₩ gro $3.75
Rising Sun, 5 gro lots ..... ₩ gro $5.50
Dixon's Plumbago ..... ₩ ℔ 8¢
Boynton's Noon Day, ₩ gro 13.00
Parlor Pride Stove Enamel ..... ₩ gro
Yates' Liquid, 2 3 5 10 gal.
₩ gal ..... $0.80 .70 .60 .50
Yates Standard Paste Polish, 10-℔ cans, ₩ ℔ 12½¢
Jet Black ..... ₩ gro $3.50
Japanese ..... ₩ gro $3.50
Fireside ..... ₩ gro $2.50
Diamond O. K. Enamel ..... ₩ gro $19.00
Bonnell's Liquid Stove Polish ..... ₩ gro $9.00
Bonnell's Paste Stove Polish ..... ₩ gro $6.00
Black Eagle Bensine Paste, 5 and 10 ℔ cans ..... 12½¢
Black Jack Water Paste, 5 and 10 ℔ cans ..... 12½¢
Nickel Plate Paste ..... ₩ gro $6.00
Crown Paste ..... ₩ gross, $7.20
Crown Paste, in 5 and 10 ℔ pails ₩ ℔ 12¢
Black Flag ..... ₩ gross, $7.20
Black Flag, 5 and 10 ℔ pails ..... ₩ ℔, 12¢
Black Flag, liquid, in bottles, ₩ gro. $8.00
Diamond Rock Nickel Cleaner ..... ₩ gro $10.20

Peppers, Corn—
Round or Square, 1 qt. ..... ₩ gr $10.00@10.50
Round or Square, 1½ qt. ..... ₩ gr $15@15.50
Round or Square, 2 qt. ..... ₩ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.
Glue—
Tinned ..... 40&10@40&10&5%
Enameled ..... 40&10@40&10&5%
Family, Howe's "Eureka" 40%
Family, L. F. C.'s "Handy" 50%

Presses.
Fruit and Jelly—
Enterprise Mfg. Co. ..... 20&10@30%
Henis ..... ₩ doz $3.50
Shepard's Queen City 40%
Silver & Co. ..... ₩ doz $2.75

Pruning Hooks and Shears.—See Shears.

Pullers.
Nail.
Scranton ..... ₩ doz $18.00, 33⅓%
Curtiss Hammer ..... ₩ doz $9.00
Giant, No. 1 ..... ₩ doz. $13.00, 10%
Giant, No. 2 ..... ₩ doz, $15.00, 10%
Pelican ..... ₩ doz, $9.00, 25%
Eclipse ..... each. $2.00 net
Economy ..... ₩ doz $6.00

Pulleys—
Hot House, Awning, &c. ..... 60&10%
Japanned Screw ..... 60&10%
Brass Screw ..... 60&10%
Japanned Side ..... 60%&10%
Japanned Clothes Line ..... 60&10%
Empire Sash Pulley ..... 55@60%
Moore's Sash, Anti-Friction 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 ..... 50&10&50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ..... 50%
Hay Fork, "P" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron 30%
Hay Fork, Reed's Self-Lubricating ... 60%
Shade Rack 45%
Tackle Blocks ..... See Blocks
Moore's Anti-Friction 5 in. Wheel, ₩ doz $12.00 ..... 40%

Pumps—
Cistern, Best Makers ..... 60@60&10%
Pitcher Spout, Best Makers ..... 67½@70%
Pitcher Spout, Cheaper G'ds. 75@75&10%

Punches—
Saddlers' or Drive, good, ₩ doz. 60@65%
Bemis & Call Co.'s Cast Steel Drive. 50&5%
Bemis & Call Co's Springfield Socket. 50&5%
Spring, good quality ..... ₩ doz $2.50@2.60
Spring, Leach's Pat. 15%
Bemis & Call Co.'s Spring and Cheek. 40%
Solid Tinners', P. S. & W. Co., ₩ doz $1.44, 55%
Tinners' Hollow Punches P. S. & W. Co. 20&5%
Rice Hand Punches 15%
Avery's Revolving 40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—
Sliding Door. Wr't Brass, ₩ ℔ 35¢ 15%
Sliding Door, Bronzed Wr't Iron. ₩ ft. 7¢
Sliding Door, Iron, Painted, ₩ foot 4¢, 40%
Barn Door. Light. In. ½ ¾ 1
Per 100 feet $2.00 2.50 3.10, 10%
b. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 net	$2.15	2.70	3.25 net
Terry's Steel Rail, ₩ foot			4½¢
Victor Track Rail, 7c ₩ foot			50&5%
Carrier, double braced, Steel Rail, ₩ foot			4@4½¢
Moore's Wrought Iron			30%

Rakes—
Cast Steel, Association goods ..... 65%@70%
Cast Steel, outside goods 60&10&10@70&5%
Malleable ..... 70@70&5%
Gibbs Lawn Rake ..... ₩ doz $4.00
Canton Lawn Rake ..... ₩ doz $3.75
Favorite Lawn Rake ..... ₩ doz $4.40
Ft. Madison Prize Bow Brace and Peerless 60%
Fort Madison Steel Tooth Lawn Rake, $6.00 ..... 35%

Razors—
J. R. Torrey Razor Co 30%
Wostenholme and Butcher, $10 to $..10%
Jordan's AAAI, new list ..... net
Jordan's Old Faithful, new list ..... net
Galvanic ..... ₩ doz $15 net
Electric Cultery Co ..... Net

Razor Strops—See Strops, Razor.

Rings and Ringers.
Bull Rings—
Union Nut Co. 55%
Sargent's ..... 60%&10@70&5%
Hotchkiss' low list 30%
Humason, Beckley & Co.'s ..... 70&10%
Peck, Stow & W. Co's. 50&10&50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%
Hog—
Top of the Hill Ringers ..... ₩ doz $2.00
Top of the Hill Rings ..... ₩ doz $1.35
Hill's Improved Ringers ..... ₩ doz $1.35
Hill's Old Style Ringers ..... ₩ doz $1.12½
Hill's Tongs ..... ₩ doz $3.00
Hill's Rings ..... ₩ doz bxs $1.00
Perfect Rings ..... ₩ doz bxs $1.50
Perfect Ringers ..... ₩ doz $2.15@$2.35
Blair's Hog Ringers ..... ₩ doz $2.00
Blair's Hog Rings ..... ₩ doz 90¢@$1.00
Champion Ringers ..... ₩ doz $2.00
Champion Rings, Double ..... ₩ doz $2.35
Brown's Ringers ..... ₩ doz $2.00
Brown's Rings ..... ₩ doz $1.15@1.35
Electric Hog Rings ..... ₩ doz boxes $1.50
Electric Hog Ringers ..... ₩ doz $2.00
Major Rings ..... ₩ doz $1.25
Major Ringers ..... ₩ doz $2.00

Rivets and Burrs—
Iron, list Nov. 17, '87 ..... 40%
Copper ..... 60&10%
Coppered Iron, Bettina Brand 40%

Rivet Sets—See Sets.

Rods—
Stair, Brass ..... 35&5%
Stair, Black Walnut ..... ₩ doz 40%

Rollers—
Barn Door, Sargent's list ..... 60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%

Rope.
Manila, 7-16 in. diam. and larger ₩ ℔ 12½¢
Manila ..... ⅜ in. ₩ ℔ 13½¢
Manila ..... ¼ and 5-16 in. ₩ ℔ 13½¢
Manila Tarred Rope ..... ₩ ℔ 11½¢
Manila, Hay Rope ..... ₩ ℔ 12½¢
Sisal ..... 7-16 inch and larger ₩ ℔ 10½¢
Sisal ..... ⅜ in. ₩ ℔ 10½¢
Sisal ..... ¼ and 5-16 in. ₩ ℔ 11½¢
Sisal, Hay Rope ..... ₩ ℔ 10½¢
Sisal, Tarred Rope ..... ₩ ℔ 9½¢
Sisal, Medium Lath Yarn ..... ₩ ℔ 9½¢
New Zealand. 7-16 in. & larger ₩ ℔ 8½¢
New Zealand ..... ⅜ inch, ₩ ℔ 9½¢
New Zealand. ¼ and 5-16 inch, ₩ ℔ 9½¢
New Zealand, Hay Rope ..... ₩ ℔ 8½¢
New Zealand. Tarred Rope ..... ₩ ℔ 8½¢

Note.—Manufacturers' prices on above 1¢ ₩ ℔ less, f. o. b. factory—less 1½ % for cash.

Cotton Rope ..... ₩ ℔ 13½@16¢
Jute Rope ..... ₩ ℔ 6½@7¢
Wire—
List February, 1892.
All kinds 45%

Rules—
Boxwood ..... 80&10&10%
Ivory ..... 50&50&10%
Starrett's Rules and Straight Edges, Steel ..... 25&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—See Weights, Sash.

Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—The following prices are often cut by jobbers.
Disston's Circular ..... 45@45&5%
Disston's Cross Cuts ..... 45@45&5%
Disston's Hand ..... 20@20&5%
Woodrough & McFarlin.
Hand, Panel and Rip ..... 25@25&5%
Narrow Champion Cross Cuts with Handles, ₩ foot ..... 18@20%
Champion Thin Back Cross Cuts, ₩ foot ..... 26@28%
Champion Extra Thin Back Cross Cuts, ₩ foot ..... 29@31%
One Man Champion Cross Cuts, ₩ foot ..... 37@40
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip ..... 30@30&5%
Narrow Champion Cross Cuts with Handles, ₩ foot ..... 18@20%
Champion Thin Back Cross Cuts, ₩ foot ..... 26@28%
Champion Extra Thin Back Cross Cuts, ₩ foot ..... 29@31%
One Man Champion Cross Cuts, ₩ ft.. 37@40
Atkins' Circular Shingle & Heading.. 50%
Atkins' Silver Steel Diamond X Cut. ₩ foot 70%
Atkins' Special Steel Dexter X Cuts ₩ foot 50%
Atkins' Special Steel Diamond X Cuts ₩ foot 32%
Atkins' Champion and Electric Tooth X Cuts ..... ₩ foot 30%
Atkins' Hollow Back X Cuts. ₩ foot 30%
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles, ₩ foot 40%
Peace Circular and Mill ..... 45@45&5%
Peace Hand Panel and Rip ..... 25@25&5%
Peace Cross Cuts ..... 45@45&5%
Richardson's Circular and Mill. 45@45&5%
Richardson's ⅄ Cuts ..... 45@45&5%
Richardson's Hand, &c. ..... 25@25&5%
C. E. Jennings & Co., Hand, Panel and Rip ..... 25@30&10%

Hack Saws—

Griffin's, complete.....40&10@50%
Griffin's Hack Saw, Blades....40&10@50%
Star Hack Saws and Blades.....25%
Eureka and Crescent.....25%

Scroll—

Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cab. Makers' $15.25%
Barnes' Scroll Saw Blades.....35%

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality, ₩ doz $21.00
Hatch, Tea, No. 161....₩ doz $6.75@7.00
Union Platform, Plain.....$2.10@2.20
Union Platform, Striped.....$2.40@2.50
Chatillon's Grocers' Trip Scales.....50%
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Family, Turnbulls.....30@30&10%
Richie Bros.' Platform.....40%

Scale Beams—See Beams, Scale.

Scissors, Fluting.....45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $5.50.....30&10%
Box, 1 Handle.....₩ doz $4.00, 10%
Box, 2 Handle.....₩ doz $6.00, 10%
Defiance Box and Ship.....20&10%
Foot.....50&10@60%
Ship, Common.....₩ doz $3.50 net
Ship, R. I. Tool Co.....10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....₩ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood.....25&10@25&10&5%
Hand, Grand Rapids, list.....5%
Lag, Blunt Point, list Jan. 1, 1890.75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890.....75@75&10%
Bed.....25&5%
Hand Rail, Sargent's.....60%&10%
Hand Rail, H & T Mfg. Co....70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50&50&5%
Jack Screws, P. S. & W.....35%
Jack Screws, Sargent...60&10@60&10&5%
Jack Screws, Stearns'.....40@40&10%

Cork—

Humason & Beckley Mfg. Co..40&10@50%
Williamson's.....33⅓@33⅓&5%
Howe Bros & Hulbert.....35%

Machine—

Flat Head, Iron.....55%
Round Head, Iron.....50%

Wood—

List January 1, 1891.

Flat Head Iron.....70 %
Round Head Iron.....65 %
Flat Head Brass.....70 %
Round Head Brass.....65 %
Flat Head Bronze.....70 %
Round Head Bronze.....65 %
Rogers' Drive Screws.....82½%

} Extra 10 & 10&5 % often given.

Scroll Saws—See Saws, Scroll.

Scythes.

Grain.....40&5@40&10%
Grass.....40&10@50%

Scythe Snaths—See Snaths, Scythe

Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools, No. 20, ₩ doz $10.00.....55&10%
Fray's Adj. Tool Hdls., Nos. 1, $13; 2, $18; 3, $12; 4, $9.....25@35&10%
Miller's Falls Adj. Tool Hdls., Nos. 1, $12 2, $18.....25%
Henry's Combination Half...₩ doz $6.50
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....30&10%
Common Brad Sets, No. 42, $10.50; No. 43, $12.50..70&10&5%

Nail—

Square.....₩ gr., $4 00@$4.25
Round.....₩ gr. $3.25
Buck Bros.....27½%
Cannon's Diamond Point...₩ gr..$12, 20%

Rivet.

Regular list.....50&10%

Saw—

Stillman's Genuine...₩ doz $5.00@7.75, 40&5%
Stillman's Pattern Hand, ₩ doz $3.25; Cross Cut, 5.25.....45@50%
Common Lever.....₩ doz $2.00, 45&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00, 40&10&50%
Leach's. No. 0, $8 00; No. 1, $15, 15@20%
Nash's.....90&10@20&10&10
Hammer, Hotchkiss.....$5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer.....30&5%
Bemis & Call Co.'s Plate.....10%
Bemis & Call Co.'s Cross Cut.....12½%
Aiken's Genuine.....$13.00, 50&10@60%
Aiken's Imitation.....$7.00, 55&5%
Hart's Pat. Lever.....20%
Disston's Star.....25%
Leopold.....40&10@50%
Atkin's Lever.....₩ doz No. 1, $6.00
Atkin's Criterion.....₩ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00.....40&10%
Avery's Saw Set and Punch.....50%
Chieftain Co.'s Superior.....₩ doz $7.00
Chieftain Co.'s Royal.....₩ doz $7.50
Crescent.....₩ doz $3.00
Lloyd's Acme.....₩ doz $15.00, 40&10%

Sharpeners, Knife.

arkins.

Applewood Handles....₩ doz $6.00, 40%
Rosewood or Cocobo a.₩ doz $900 40%

Shaves, Spoke

Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....30&10%
Cincinnati.....35&10%
Goodell's, ₩ doz $9.00.....25%

Shears—

American (Cast) Iron...75&10@75&10&5%
Barnard's Lamp Trimmers...₩ doz $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881.....60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881.....60&10&10@60&10&10&5%
Heinisch's Tailor's Shears.....33⅓%
Cast Steel Trimmers, First quality.....80@80&10%
Second quality.....80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears.....10%
Clipper.....10&10%
Victor Cast Shears.....75&10@75&10&5%
Rowe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Davenport Cutlery Co.....60@60&10%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list 60%
Calzante, 3½ to 9 in, ₩ doz. $1.00 ₩ inch
Electric Cutlery Co.....Net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw.....₩ doz $18.00, 20&10%
Disston's Pruning Hook, ₩ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools.....40%
Pruning Shears, Henry's Pat, ₩ doz $3.75@4.00
Henry's Pruning Shears, ₩ doz $4.25@4.50
Wheeler, M. & C. Co.'s Combination, ₩ doz $12.00, 20%
Dunlap's Saw and Chisel, ₩ doz $5.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7 25
P. S. & W. Co.....60%

Tinners', &c.—

Shears and Snips (P. S. & W.).....20@25%
Snips, J. Mallinson & Co.....33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1885..50&10@60&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%

Sliding Shutter—

R. & E. list Dec. 18, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

Shells—

First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Trise.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax 65&2%

Shells Loaded—

Standard List, July 19, 1890.....40&10&10@40&10&10&5%

Ship Tools—

L. & I. J. White.....30&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phoenix and Bryden's Boss, at factory.....$4.00
Bryden's Frog Pressure, at factory $5.00

Mule—

Add $1 ₩ keg to above prices.

Ox, Wrought—

Ton lots.....₩ ℔ 9¢
1000 ℔ lots.....₩ ℔ 9½¢
500 ℔ lots.....₩ ℔ 10¢

Shot—

	Ton lots	Small lots
Drop, up to B, 25-℔ bag	$1 25	$1.30
Drop, no to B, 5-℔ bag	.35	.35
Drop, B and larger, 25-℔ bag	1.50	1.55
Drop, B and larger 5-℔ bag	.40	.40
Buck and Chilled, 25-℔ bag	1.50	1.55
Buck and Chilled, 5-℔ bar	.40	.40
Dust Shot, 25-℔ bag	1.95	2.00
Dust Shot, 5-℔ bag	.45	.45

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885.....30%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S, R. R. Goods.....20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
H. B. Myers Co.....30 %
Payne Pettebone & Son.....25%&25%
Remington's (Lowman's Pat.)30&10@40%
Rowland's, Black Iron.....50&10%
Rowland's Steel.....60&5@60&10%

Shovels and Tongs—

Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

Sieves—

Mann's Tin Rim.....50&25%
Buffalo Metallic, S. S. & Co.....50&25%
Shaker (Barler's Pat.) Flour Sifters.....₩ doz $2.00; ₩ gr $21.00
Electric.....₩ gr $21.00
A. & W. Sifters.....₩ doz 2.00
Hunter's.....₩ doz $2.00

Sieves, Wooden Rim—

	Iron.	Plated
Mesh 18, Nested, ₩ doz..	80¢	$1.00
Mesh 20, Nested, ₩ doz..	95¢	1.10
Mesh 24, Nested, ₩ doz..	$1.15	1.35

Skeins. Thimble—

Western list.....75&5@75&10%
Columbus Wrt. Steel. Special net prices
Coldbrookdale Iron Co.....60%
Seneca Falls Pattern.....60%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Slates—

School, by case.....50&10@50&10&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&10&5&2%
Covert, New Patent.....50&10&5&2%
Covert, New R. E.....60&10&5&2%
Covered Spring.....60&10&10%
E. Covert's Triumph.....33⅓%

Snaths, Scythe.

List.....50%

Soldering Irons—See Irons, Solder ing.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8¼-inch, ₩ doz., No. 5, $8; No 6X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers.....40&15%
C. Rogers & Bros.....40&15%
Rogers & Bro.....40&15%
Reed & Barton.....40@40&5%
Wm. Rogers Mfg. Co.....40, 15&5%
Simpson, Hall, Miller & Co.....40, 15&5%
Holmes & Edwards Silver Co...40, 15&5%
L. Boardman & Son.....50&12½%

Miscellaneous.

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 30 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50&5%
No. 49 Nickel Silver.....50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal.....50, 10&5%
18% Rogers' German Silver.....60&5%
22% Rogers' Nickel Silver.....50&5%
German Silver.....50@50&5
German Silver, Hall & Elton..60&5% cash
Nickel Silver.....50&5@50&10&5% cash
Britannia.....60@60&5%
Boardman's N'ck'l Silver, list July 1, 1891.....40&7½&2%
Boardman's Britannia Spoons, case lots.....60&5% cash

Springs—

Door.—

Torrey's Rod, 39 in.....₩ doz $1.20@1.25
Gray's, ₩ gr., $20.00.....25%
Bee Rod ₩ gr., $20.00.....20@25%
Warner's No. 1, ₩ doz., $2.50; No. 2, $3.30.....50&50&5%
Gem (Coil), list April 19, 1886.. 10@15%
Star (Coil), list April 19, 1886...20@2 &5%
Victor (Coil).....60&10@60&10&5%
Champion (Coil).....60&10@60&10&10%
Cowell's....No. 1, ₩ doz, $18.00; No. 2, $15.00.....50@50&10%
Rubber, complete, ₩ doz, $4.50...55&10%
Hercules.....50@50&10%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll.....60&10&10%
Cliff's Bolster Springs.....25%

Squares—

Steel and Iron.....
Nickel-Plated.....
} .80&10@80&10&10%
Try Square and T Bevels...60&10@60&10&10%
Disston's Try Square and T Bevels.....50%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor.....50%

Squeezers.

Fodder.—

Blair's.....₩ doz $2.00
Blair's "Climax".....₩ doz $1.25

Lemon—

Porcelain Lined, No. 1....₩ doz $6.00, 25&20%
Wood, No. 2.....₩ doz $3.00, 35%
Wood, Common.....₩ doz $1.70@1.75
Dunlap's Improved.....₩ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₩ doz.....25&10%
Jennings' Star.....₩ doz $2.50
The Boss.....₩ doz $2.50
Dean's..Nos. 1, ₩ doz $6.50; 2, $8.35; 3, $1.90; Queen, $2.50
Little Giant.....50@50&5%
King.....40&5%
Hotchkiss Straight Flash...₩ doz $12.00
Silver & Co., Glass.....₩ gro. $9.00
Manny Lemon Juice Extractor: Standard.....₩ doz $0.75@$1 00
Improved.....₩ doz $4.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger.....₩ ℔ 7@7½¢
Barbed, ¾ in.....₩ ℔ 8@8½¢
Fence staples, Galvanized, Fence Staples, Plain.....
} Same price as B'rb Wire See Trd. Rep.

Steelyards.....40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods.....53⅓@40
Butterfield's Goods.....53⅓@40%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates.....33⅓&5@40%
Reversible Ratchet.....30
Gardner.....35%

Stops, Bench.

Morrill's.....₩ doz $9, 50%
Hotchkiss's.....₩ doz $5 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's.....₩ doz $8.....10%
Cincinnati.....25&10%
Terrell's Nos. 1 and 2, ₩ doz., $3; No. 3, $3.60.....30%

Stone—

Hindostan No. 1, 3¢; Axe, 3¾¢; Slips No. 1, 4¼¢
Sand Stone.....₩ ℔ 2½¢
Washita Stone, Extra.....₩ ℔ 22@23¢
Washita Stone, No. 1.....₩ ℔ 19@20¢
Washita Stone, No. 2.....₩ ℔ 12@13¢
Washita Slips, No. 1, Extra..₩ ℔ 44@46¢
Washita Slips, No. 1.....₩ ℔ 33@35¢
Arkansas Stone, No. 1, 4 to 6 in₩ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in₩ ℔ $1.85
Turkey Oil Stone, 4 to 8 in.....₩ ℔ 1@4
Turkey Slips.....₩ ℔ $1.00@1 50
Lake Superior, Chase.....₩ ℔ 13¢
Lake Superior Slips, Chase.....₩ ℔ 20¢
Seneca Stone, Red Paper Brand....₩ ℔ 18@20¢
Seneca Stone, High Rounds..₩ ℔ 20@25¢
Seneca Stone, Small Wheels..₩ gro $24.00

Stove Polish—See Polish, Stove.

Stretchers, Carpet.

Cast Steel, Polished.....₩ doz $3.25
Cast Iron, Steel Points.....₩ doz 80¢
Socket.....₩ doz $1.75
Bullard's.....25@25&10%

Strops, Razor—

Genuine Emerson.....60@60&5%
Imitation " .....₩ doz $2.00, 20&10&5%
Torrey's.....35%
Badger's Belt and Com.....doz $3.00
Lamont Combination.....₩ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89.50%
Electric Cultery Co.....Net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₩ doz $20, 50&50&5%
Perry.....₩ doz, No. 1, $15.00; No. 0, $21.00.....50&5@50&10%
Draw Cut No. 4, each $50.00.....30%
Enterprise Mfg. Co.....20&10@30%
Silver's.....40&10%

Sweepers, Carpet.

Bissell No. 5.....₩ doz $17.00
Bissell No. 8.....₩ doz $20.00
Bissell, Grand.....₩ doz $36.00
Stand rd.....₩ doz $24.00
Domestic.....₩ doz $21.00
Domestic, No. 2..₩ doz $22.00
Grand Rapids.....₩ doz $34.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₩ doz $18.00
Improved Parlor Queen, Nickeled..₩ doz $27.00
Japanned.....₩ doz $24.00
Excelsior.....₩ doz $22.00
Garland.....₩ doz $18.00
Parlor Queen.....₩ doz $24.00
Housewife's Delight.....₩ doz $15.00
Queen.....₩ doz $16.00
Queen, with band.....₩ doz $18.00
King.....₩ doz $20.00
Weed, Improved.....₩ doz $18.00
Hub.....₩ doz $16.00
Cog-Wheel.....₩ doz $16.00
Easy.....₩ doz $22.00
Monarch.....₩ doz $22.00
Goshen.....₩ doz $21.00
Ladies' Friend.....₩ doz $15.00
Advance.....₩ doz $18.00
Supreme.....₩ doz $22.00

Tacks, Brads, &c.—

List October 19, 1889. Old established standard Weights Short Weight goods are sold at lower prices.

Carpet Tacks—
American, Blued.....72½%
American, Tin'd and Cop'd..70%
Steel, Bright and Blued...72½%
Steel, Tinned and Coppered.75%
Swedes Iron, Blued.....75%
Swedes Iron, Tinned.....78%
American Iron Tacks.....7.½%
Swedes Iron Tacks—
S. S., Blued.....71%
S. S., Tinned.....74%
Lanc., Blued.....60%
Lanc., Tinned.....63½%
Gimp and Lace Tacks—
S. S., Blued.....67½%
S. S., Tinned.....71%
Lanc., Blued.....60%
Lanc., Tinned.....63½%
Basket and Trimmers' Tacks—
Lane.....61½%
S. S.....69½%
Hungarian Nails.....65½%
Common and Patent Brads....6 %
Leathered Tacks.....20%
Brush Tacks.....63½%
Looking Glass Tacks.....35%
Picture-Frame Points.....43½%
Finishing Nails.....6½%
Trunk and Clout Nails—
Black.....67½%
Tinned or Coppered.....71%
Basket Nails.....71½%
Chair Nails.....56½%
Cigar-Box Nails.....52%
Tin Capped Nails.....50%

Extra discount 25&2%.

Miscellaneous—

D'ble-Point..12o count85&10@85&10&10%
Double Point, 100 count.....90%
Wire Carpet Nails.....50&10%
Plymouth Rock Steel Carpet Tacks..25%
Wire Brads and Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....35@30%

Thermometers—

Tin Case.....80&30&10%

Thimble Skeins—See Skeins.

Ties, Bale— St
Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears Tinners', &c

Tinware—
Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&25%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.
Coopers'—
Bradley's.....30%
Barton's.....30@30&5%
L. & I. J. White.....30&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....30%
Lumber.
Ring Peavies, "Blue Line"...₩ doz $20.00
Ring Peavies, Common.....₩ doz $18.00
Steel Socket Peavies.....₩ doz $21.00
Mall. Iron Socket Peavies....₩ doz $19.00
Cant Hooks, "Blue Line"...₩ doz $16.00
Cant Hooks, Common Finish..₩doz$14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ doz $12.00
Hand Spikes....₩ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ doz, 12 ft., $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ doz $18.00
Saw.
Atkins' Perfection.....₩ doz $12.00
Atkins' Excelsior.....₩ doz $6.00
Atkins' Giant.....₩ doz $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—
Game—
Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%
Mouse and Rat—
Mouse Wood, Choker, ₩ doz holes, 9@10¢
Mouse, Round Wire.....₩ doz $1.50 10%
Mouse, Cage, Wire.....₩ doz $2.50 10%
Mouse, Catch-'em-alive.....₩ doz $2.50 15%
Mouse, Bonanza.....₩ doz $0.90@$1.00
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz., 75¢; in full cases, ₩ doz 60@65¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Triers—
Butter and cheese.....35%

Trimmers, Spoke.
Bonney's.....₩ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ doz. 55&10%
Douglas'.....₩ doz $9.00, 20%
Cincinnati.....25%

Trowels—
Lothrop's Brick and Plastering.....20@10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering.....25%
Peace's Plastering.....35%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70¢
Cleves' Angle Trowel.₩ gro.$15,net @10%

Trucks, Warehouse, &c.—
B. & L. Block Co.'s list, '92.....40%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	26¢	31¢
No. 12, ¼ and ⅛ ℔ Balls	22¢	30¢
No. 15, ¼ and ⅛ ℔ Balls	20¢	29¢
No. 24, ¼ and ⅛ ℔ Balls	20¢	29¢
No. 36, ¼ and ⅛ ℔ Balls	18¢	28¢

No. 264, Mattress, ¼ and ⅛ ℔ Balls 52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15¼¢
3-Ply Hemp, 1 ℔ Balls.....16@16¼¢
3-Ply Hemp, 1¼ ℔ Balls.....15@15¼¢
Cotton Wrapping, 5 Balls to ℔ ..15@16¢
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls, ...10¢
Wool.....6¾@8¼¢
Paper.....13@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—
Solid Box.....50&10@50&10&2½
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25&30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Massey Quick Action.....20 @ 25 %
Saw Filers—
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....23¼&10@35¼&10&10%
Stearn's Silent Saw Vises.....23¼@35%
Sargent's.....60%&10%
Hopkins'.....₩ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Miscellaneous.
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10¢
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40 %

Wade—Price per M. Dis.30&2½

J.M.C.&W.R.A.—B. E., 11 up...	68¢
J.M.C.&W.R.A.—B. E., 9&10...	82¢
J.M.C.&W.R.A.—B. E., 8.....	96¢
J.M.C.& W.R.A.—B. E., 7.....	$1.10
J.M.C.&W.R.A.—P. E., 11 up..	1.15
J.M.C.&W.R.A.—P. E., 9&10..	1.50
J.M.C.&W.R.A.—P. E., 8.....	1.70
J.M.C.&W.R.A.—P. E., 7.....	1.80
Eley's B. E., 11 up.....	$1.70@$1.75
Eley's P. E., 11@30.....	3.00@ 3.25

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.
Cast Iron, Hollow—
Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled-Ware—
Maslin Kettles.....75@75&5%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and S'pans.....60@60&5%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....6@&10&10%
Boilers and Saucepans.....40&5%
Enameled—
Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%
Kettles—
Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢		75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10¼ in.....	$2.00	$2.25
Wash-Basins, 12 in.....	2.25	2.75
Keelers, 11¼ in.....		4.00
Cuspidors.....		3.00
Spittoons, "Daisy," 8 in....	4.00	4.50
Peck Measure.....	4.00	
Half-peck Measure.....	3.50	

See also Pails.
Indurated Fiber—25%
Spittoons, No. 2, ₩ doz.....$3.40
Basins, Ringed, ₩ doz., No. 2.....$3.00
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$3.90
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$1.70
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set.....$1.60
See also Pails.
Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.
Reed & Barton.....
Meriden Britannia Co.....
Simpson, Hall, Miller & Co.....
Rogers & Brother.....
Hartford Silver Plate Co.....
William Rogers Mfg. Co.....
} 40&5%

Washers—

Size hole.....	5-16	⅜	½	⅝ to 1⅛
Washers.....	6	5	8.50¢	3

In lots less than 200 ℔, ₩ ℔, add ¼¢. 5-℔ boxes 1¢ to list.

Wedges—
Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 3½¢

Weights, Sash—
Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.
8 in., $2.35; 10 in., $2.70; 12 in., $3.20

Wire and Wire Goods—
Iron—
Market.
Br. & Ann., Nos. 0 to 18... 75&10@80%
Cop'd, Nos. 0 to 18.....75&5@75&10%
Galv., Nos. 0 to 18.....70@70&10%
Tin'd, Tin'd list Nos. 0 to 18,70@70&10%
Stone.
Br. and Ann'd, Nos. 16 to 18.....80%
Bright and Ann'd, Nos. 19 to 26..80&5%
Br. and Ann'd, Nos. 27 to 36...82½& 5%
Tinned.....
Tinned Broom Wire 18 to 21, ₩ ℔...45½¢
Galvanized Fence, Nos. 8 and 9..70&10%
Brass, list Jan. 18, 1884... ....25@33⅓%
Copper, list Jan. 18, 1884..... 33⅓@40%
Annealed Wire on Spools.....60%
Malin's Steel and Tin'd on Spools.....60%
Malin's Brass and Cop. on Spools.....50%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass.....50%
Cast Steel Wire.....50%
Stubs' Steel Wire .....$6.00 to 2, 30%
Steel Music Wire, 12 to 30...60@70¢ ₩ ℔
Wire Clothes Lines, see Lines.
Wire Picture Cord see cord.
Bright Wire Goods—
Standard list.....35%
Wire Cloth and Netting.
Painted Screen Cloth, good quality ₩ 100 sq. ft., $1.40
Galvanized Wire Netting.....70&10@75%

Wire, Barb.—Prices unsettled. See Trade Report.

Wire Rope—See Rope, Wire.

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S"..... 40&10@50%
Baxter's Diagonal..... 40&10@50%
Coes' Genuine..... 50&2%
Coes' "Mechanics'"..... 50&10&2%
Girard Standard..... 65&10%
Lamson & Sessions' Engineers'.. 60&10%
Lamson & Sessions' Standard.... 70&10%
P. S. & W. Agricultural.....
Girard Agricultural.....
Lamson & Sessions' Agric'l..
} 75&10@ 70&10&25%
Bemis & Call's
Pat. Combination.....30%
Merrick's Pattern.....30%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....50&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....30&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Hercules.....70%
Walker's.....55&2%
Diamond Steel.....55&2%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&5%

Wringers, Clothes—
Am. Wringer Co.'s list, July 15, 91..2% cash
Colby Wringer Co., list Sept. 1 '91.2% cash
Lovell Mfg Co., list Jan. 1, 1892.2 % cash
Peerless Mfg. Co., list Feb., 1892..2%cash

Wrought Goods—
Staples, Hooks, &c., list March 17, 1892 .....60&2½%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw...per gal.	40	@	..
Linseed, City, boiled.....	43	@	..
Linseed, Western, raw.....	39	@	..
Lard, City, Extra Winter..	57	@	58
Lard, City, Prime.....	56	@	57
Lard, City, Extra No. 1.....	44	@	45
Lard, City, No. 1.....	40	@	42
Lard, Western, prime.....	55	@	56
Cotton-seed, Crude, prime.	27	@	..
Cotton-seed, Crude, off grades.....	25	@	26
Cotton-seed, Summer Yellow, prime.....	30½	@	31
Cotton-seed, Summer Yellow, off grades.....	28½	@	29
Sperm, Crude.....	69	@	70
Sperm, Natural Spring.....	67	@	70
Sperm, Bleached Spring....	72	@	75
Sperm, Natural Winter.....	73	@	76
Sperm, Bleached Winter...	78	@	81
Whale, Crude.....	..	@	45
Whale, Natural Winter.....	54	@	55
Whale, Bleached Winter...	57	@	58
Whale, Extra Bleached.....	59	@	60
Sea Elephant, Bleached Winter.....	62	@	63
Menhaden, Crude, Sound...	..	@	31
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed..	37	@	38
Menhaden, Bleached W'ter.	38	@	39
Menhaden, Extra Bleached	40	@	42
Tallow, City, prime.....	44	@	45
Tallow, Western, prime....	42½	@	43
Cocoanut, Ceylon.....	6¼	@	8½
Cocoanut, Cochin.....	6¼	@	6¾
Cod, Domestic	38	@	40
Cod, Foreign.....	43	@	45
Red Elaine.....	34	@	36
Red Saponified.....₩ ℔	4½	@	5
Bank.....per gal	35	@	36
Straits.....	36	@	37
Olive, Italian, bbls.....	60	@	62
Neatsfoot, prime.....	50	@	60
Palm, prime, Lagos....₩ ℔	6	@	6¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	7	@	7½
Black, 29 gravity, 15 cold test.....	8	@	8½
Black, 29 gravity, summer strainer light ltered...	6	@	6½
Cylinder, dark, filtered	13	@	15
Paraffine, 23½ @ 24 gravity.	13½@		14
Paraffine, 25 gravity.....	12½@		13
Paraffine, 28 gravity.....	8	@	..
Paraffine, red, 23½@24 gr'ty	13	@	14

Paints and Colors.

Barytes, Foreign, ₩ ton.	$23.00	@	$24.00
Barytes, Amer. floated...	30.00	@	$32.00
Barytes, Amer. No. 1....	17.00	@	19.00
Barytes, Amer. No. 2....	13.00	@	16.00
Barytes, Amer., No. 3....	11.00	@	12.00
Blue, Celestial..... ₩ ℔	6	@	8
Blue, Chinese	40	@	50
Blue Prussian.....	25	@	40
Blue, Ultramarine	8	@	25
Brown, Spanish	½	@	1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels	3.20	@	.
Carmine, No. 40, in ounce bottles.....	4.20	@	.
Chalk, in bulk.... ₩ ton.	1.60	@	1.90
Chalk, in bbls.. ₩ 100 ℔.	33	@	40
China Clay, English.... ₩ ton.	13.00	@	18.00
Cobalt Oxide, prep'd....	9.00	@	11.00
Cobalt Oxide, black.. .... lots 100 ℔.	2.50	@	....
Cobalt, Oxide, black .... less 100 ℔.	2.65	@	2.90
Green, Paris, in bulk....	14	@	15¼
Green Paris, 170 @ 175 ℔ kegs.....	14½@		16¾
Green, Paris, small pack.	16	@	21½
Green, Chrome, ordinary	6	@	12
Green, Chrome, pure.. ..	23	@	25
Lead, Eng., B.B. white....	8½@		10
Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔....	7¼	@	7½
Kegs, lots 500 ℔ to 5 tons....	6¾	@	7
Kegs, lots 5 tons to 12 tons..	6¾	@	6¾
Kegs, lots 13 tons and over..	6¼	@	6¾
Lead White in oil 25 ℔ tin pails add to keg price.....		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price		@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ⅛ bbls....	6¼	@	7½
Lead Red, kegs.....	6¾	@	7½
Litharge, kegs.....	6¼	@	7⅛
Litharge, bbls. and ⅛ bbls....	6¼	@	7⅛

TERMS, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 2¼ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed.....	1½@		2½
Ocher, German Washed...	1½@		3
Ocher, American.....	¾@		1¼
Orange Mineral, English...	8½@		9
Orange Mineral, French....	10	@	10¼
Orange Mineral, German ..	8½@		09
Orange Mineral, American.	8¾@		8¾
Paris White, English Cliff-stone.....	1.00	@	1.15
Paris White, American.....	70	@	75
Red, Indian, English.....	5½@		7
Red, Indian, American....	2	@	6½
Red, Turkey.....	9	@	14
Red, Tuscan	9	@	11
Red, Venetian, American.. ₩ 100 ℔.	1.00	@	1.10
Red, Venetian, English...	1.20	@	1.35
Sienna, Italian, Burnt and Powd.₩ ℔	4	@	5
Sienna, Ital., Burnt Lumps	1½@		3½
Sienna, Ital., Raw, Powd..	4½@		5½
Sienna, Ital., Raw Lumps..	1½@		3½
Sienna, American, Raw....	1½@		1¾
Sienna, American, Burnt and Powdered.....	1½@		1¾
Talc, French.....	1½@		1¾
Talc, American.....	0½@		1¼
Terra Alba, Frch. ₩ 100 ℔	75	@	80
Terra Alba, English	70	@	75
Terra Alba, American No. 1	70	@	75
Terra Alba, American No. 2	45	@	50
Umber, Turkey, Bnt. and Powd..... ₩ ℔	3½@		4
Umber, Turkey Bnt. Ln	2½@		3
Umber, Turkey, Raw and Powdered.....	3½@		
Umber, Turkey, R'w Lmps	2½@		2¾
Umber, Turkey, Bnt. Amer.	1½@		1¾
Umber, Turkey, R'w Amer.	1½@		1¾
Yellow, Chrome.....	10	@	25
Vermilion Americ. Lead..	11½@		17
Vermilion, Quicks'er, bulk.	57	@	..
Vermilion, Quicks'er, bags.	58	@	..
Vermilion Quicksilver, smaller pkgs.....	62	@	..
Vermilion English Import	85	@	90
Vermilion, Imitation, Eng.	8	@	35
Vermilion, Trieste....	90	@	92½
Vermilion, Chinese.....	92½@		96
Whiting, Common. ₩ 100 ℔	35	@	45
Whiting, Gilders'.....	60	@	60
Zinc, American, dry....₩ ℔	4½@		5
Zinc, French, Red Seal....	..	@	3½
Zinc, French, Green Seal..	..	@	3½
Zinc, French, V. M. X....	..	@	7
Zinc, Antwerp, Red Seal....	..	@	7¼
Zinc, Antwerp, Green Seal	..	@	8½
Zinc, German, L. Z. O.....	..	@	6½
Zinc, V M. in Poppy Oil, 6. Seal, lots of 1 ton and over.....	10¾@		11¼
lots less than 1 ton	11	@	11¾
Zinc, V. M. in Poppy Oil, Red Seal.....	..	@	..
lots of 1 ton and over....	10	@	10¼
Lots of less than 1 ton...	10¼@		10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Black, Drop, Frankfort	25	@	30
Black, Drop, English.....	12	@	15
Black, Drop, Dom stic	7	@	10
Black, Lampblack, Best....	20	@	35
Black, Lampblack, Common	7	@	18
Black, Ivory.....	8	@	15
Blue, Chinese.....	35	@	50
Blue, Prussian.....	20	@	45
Blue, Ultramarine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18¼
Sienna, Raw.....	7	@	14
Sienna, Burnt.....	7	@	14
Umber Raw.....	7	@	10
Umber, Burnt	7	@	10

Putty.

In barrels and ⅛ bbls....	.01¼@		.01¾
In tubs.....	.01¾@		.01¾
In tin cans.....	.01¾@		.02¼
In bladders.....	.01¼@		.02¼

Spirits Turpentine.

In regular bbls.....	3 1½@		36½
In machine bbls.....	3 3¼@		37

Glue.

Low Grade.....₩ ℔	8	@	10
Cabinet.....	13	@	14
Medium White.....	13	@	15
Extra White...	17	@	20
French	10	@	22
English....	10	@	15
Irish	12	@	

CURRENT METAL PRICES.

APRIL 13, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in...	₩ ℔ 1.90 @ 2.00¢
Refined Iron:	
⅜ to 2 in. round and square. 1 to 4 in. x ⅜ to 1½ in.... 4½ to 6 in. x ⅜ to 1 in.	₩ ℔ 2.00 @ 2.30¢
1 to 6 in. x ¼ and 5-16	₩ ℔ 2.20 @ 2.40¢
Rods—⅜ and 11-16 round and sq.	₩ ℔ 2.10 @ 2.30¢
Bands—1 to 6 x 3-16 to No. 12	₩ ℔ 2.30 @ 2.50¢
"Burden Best" Iron, base price	₩ ℔ 3.00¢
Burden's "H. B. & S." Iron, base price	₩ ℔ 2.80¢
"Ulster"	₩ ℔ 3.00¢
Norway Bars	3.75 @ 4.00¢
Norway Shapes	4.50 @ 5.00¢

Merchant Steel from Store.

	Per pound
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2¾¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ ℔ 3 @	3⅜¢
17 to 20	₩ ℔ 3⅛ @	3⅜¢
21 to 24	₩ ℔ 3¼ @	3⅜¢
25 and 26	₩ ℔ 3⅜ @	3¾¢
27	₩ ℔ 3½ @	3¾¢
28	₩ ℔ 3⅝ @	4 ¢
American B. B.	₩ ℔ 4¢ @ 4½¢	

Galvanized Sheet Iron.

	B. B.	2d qual
Nos. 10 to 16	₩ ℔ 4.20¢	4 ¢
17 to 22	₩ ℔ 4.60¢	4 30¢
23 to 24	₩ ℔ 4.90¢	4.70¢
25 to 26	₩ ℔ 5.30¢	5 ¢
27	₩ ℔ 5.60¢	5.30¢
28	₩ ℔ 6 ¢	5.70¢
29 to 30	₩ ℔ 7 ¢	6.70¢
Genuine Russia, according to assortment	₩ ℔ 11½¢ @ 11½¢	
Patent Planished	₩ ℔ A, 10¢; B, 9¢	
Craig Polished Sheet Steel	₩ ℔, 8½¢	

English Steel from Store.

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 16½ @ 17 ¢
Swaged. Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 12 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12½¢
R. Mushet's "Special"	₩ ℔ 48 ¢
" " "Titanic"	₩ ℔ 20 ¢

METALS.

Tin.

	Per ℔
Banca, Pigs	.22 @ .. ¢
Straits, Pigs	.21 @21¼¢
Straits in Bars	.23 ¢

Tin Plates.

Duty: 2.2 cents per pound.

Charcoal Plates.—Bright.

Guaranteed Plates command special prices, according to quality. Per box.

Melyn and Calland Grade.	IC, 10	x14..	@ $6.50
" " "	IC, 12	x12..	@ 6.75
" " "	IC, 14	x20..	@ 6.50
" " "	IC, 20	x28..	@ 13.00
" " "	IX, 10	x14..	@ 8.50
" " "	IX, 12	x12..	@ 8.75
" " "	IX, 14	x20..	@ 8.50
" " "	IX, 20	x28..	@ 17.00
" " "	DC, 12½	x17..	@ 6.00
" " "	DX 12½	x17..	@ 8.00
Allaway Grade	IC, 10	x14..	@ 6.00
" "	IC, 12	x12..	@ 6.25
" "	IC, 14	x20..	@ 6.00
" "	IC, 20	x28..	@ 12.00
" "	IX, 10	x14..	@ 7.50
" "	IX, 12	x12..	@ 7.75
" "	IX, 14	x20..	@ 7.50
" "	IX, 20	x28..	@ 15.00
" "	DC, 12½	x17.	@ 5.50
" "	DX, 12½	x17..	@ 7.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20	$5.70	@ $5.75
10 x 20	..	@ 8.50
20 x 28	11.50	@ 12.00
IX, 10 x 14, 14 x 20	..	@ 7.00
BV Grade.—IC, 10 x 14, 14 x 20	..	@ 5.75

Charcoal Plates.—Terne.

Guaranteed Plates command special prices according to quality.

Dean Grade.—IC, 14 x 20		@ $5.75
20 x 28		@ 11.00
IX, 14 x 20		@ 6.50
20 x 28		@ 13.00
Abecarne Grade.—IC, 14 x 20		@ 5 65
20 x 28	10.75	@ 11 00
IX 14 x 20		@ 6 50
20 x 28		@ 13 00

Tin Boiler Plates.

IXX, 14 x 26.....112 sheets	@ $13.38
IXX, 14 x 28.....112 sheets	@ 14 : 0
IXX 14 x 31.....112 sheets	@ 16.00

Copper.

Duty: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ ₩ ℔. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot

Lake	@ 13 ¢
Ansonia Grade Arizona	@ 12½¢
Ansonia Grade Casting	@ 12¼¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 5, 1890. Subject to a discount of 10 % @ 20 %, according to size of order.

Not wider than	Not longer than	And longer than	Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
			Weights per square foot and prices per pound.							
30	72		22	22	22	23	24	25	28	30
90		72	22	22	22	23	25	27	31	
36	96		22	22	22	24	26	30	33	...
36		96	22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	...	...
48		96	22	22	24	25	27	29	33	....
60	96		22	22	25	27	29	34	....	..
60		96	22	22	25	28	....	....	....	...
84	96		23	24	....	....	....	....	....	...
84		96	24	25	....	....	....	....	....	...
Over 84 in. wide			25	27	....	....	....	....	....	...

Bolt Copper, ⅝ inch diameter and over, per pound 22¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.

Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

10 % discount.

Copper Wash Bowl Bottoms.

Tinned ₩ ℔ 34¢, 10%

Tinning.

Net.

Tinning sheets on one side, 10, 12 and 14 x 48 each 8¢

Tinning sheets on one side, 30 x 60 each 50¢

For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each 15¢

For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each 12¢

For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each 12¢

Tinning sheets on one side, other sizes, per square foot 2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

Not larger than 30 x 60.

16 oz. and heavier	24¢ ₩ ℔
14 oz.	25¢ ₩ ℔
12 oz.	27¢ ₩ ℔

Seamless Brass Tubes.

Net.

Dec. 16, 1891.

O. G.	N. G.	⅝	½	⅝	¾	⅞	1	1¼
8-14	6-13	30	26	23	22	21	20	17
15	14	31	26	24	23	22	21	18
16	14	32	27	25	24	23	22	18
17	15	33	28	26	23	24	23	19
18	16	35	29	27	25	24	23	20
19	17	36	30	28	27	26	25	22
20	18-19	37	32	30	29	28	27	24
21	20	39	34	32	31	30	29	27
22	21	41	35	34	32	31	30	29
23	22	43	37	35	34	33	32	32
24	23	46	39	37	36	34	33	34
25	24	49	42	39	38	37	36	38

Copper Tubes, 3¢ ₩ ℔ additional.
Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	1.00
Plain, ⅛ inch	1.50
Fancy Tubing, Brass, to No. 20, inclusive	43¢ ₩ ℔
Bronze Tubing, 3¢ ₩ ℔ more than Brass.	
Discount from list	30 @ ..%

Roll and Sheet Brass.

(Brown & Sharpe Standard Gauge.)

Common High Brass: Wider than and including	in. 2 10	in. 10 12	in. 12 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24
To No. 20, inclusive	.21	.22	.23	.25	.27	.29	.31	.33
Nos. 21, 22, 23 and 24	.22	.23	.24	.26	.28	.30	.32	.34
Nos. 25 and 26	.22½	.23½	.24½	.27	.29	.31	.33	.35
Nos. 27 and 28	.23	.24	.25	.28	.30	.32	.34	.36
Common High Brass: Wider than and including	in. 24 26	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40
To No. 20, inclusive	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24	.37	.40	.43	.47	.51	.56	.61	.66
Nos. 25 and 26	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28	.39	.42	.45	.49	.53	.58	.65	.75

Discount from List 10 % to 25 %.

Brass and Copper Wire.

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Copper.
All Nos. to No. 16, inclusive	$0.22	$0.24	$0 26	$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 " " 20	.24	.26	.28	.32
No. 21, or 0.032 diam	.25	.27	.29	.33

Discount 10 % to 25 %.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Copper.
No. 22	$0 26	$0.28	$0 30	$0.34
No. 23	.28	.30	.32	.36
No. 24	.30	.32	.34	.38
No. 25	.32	.34	.36	.40
No. 26	.35	.37	.39	.43
No. 27	.38	.40	.42	.46
No. 28	.42	.44	.46	.51
No. 29	.45	.47	.49	.54
No. 30	.48	.50	.52	.62
No. 31	.51	.53	.55	.67
No. 32	.55	.57	.59	.73
No. 33	.59	.61	.63	.82
No. 34	.64	.66	.68	.96
No. 35	70	.72	.74	1.30
No. 36	.76	.78	.80	1.50
No. 37	1.00	1.02	1.04	1.70
No. 38	1.30	1.32	1.34	2.00
No. 39	2.00	2.02	2.00	3.25
No. 40	2.60	2.62	2.60	5.75

— % discount.
Spring Wire, 2¢ ₩ ℔ advance.

Copper Belt and Hose Rivets and Burrs.

	Per ℔		Per ℔
No. 5	49¢	No. 11	56¢
No. 6	49¢	No. 12	58¢
No. 7	49¢	No. 13	60¢
No. 8	50¢	No. 14	65¢
No. 9	52¢	No 15	70¢
No 10	54¢		

60 % @ 10 % discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.

¼ to ⅜ inch inclusive	18¢ ₩ ℔
Over ⅜ to 3½ inches inclusive	17¢ ₩ ℔
Over 3½ to 5 inches inclusive	1¢ ₩ ℔

Piston Rods, Finished True, Smooth and Straight.

¼ to ⅜ inch inclusive	19¢ ₩ ℔
Over ⅜ to 2 inches inclusive	18¢ ₩ ℔
Over 2 to 3½ inches inclusive	19¢ ₩ ℔
Over 3½ to 5 inches inclusive	2 ¢ ₩ ℔

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 ℔.

Western Spelter	5¢ @ 5¼¢
Bertha (pure)	8 ¢

Zinc.

Duty; Sheet, 2½¢ ₩ ℔.

600 ℔ casks	6¾¢
Per ℔	7 ¢

Lead.

Duty: Pig, $2 ₩ 100 ℔. Old Lead, 2¢ ₩ ℔. Pipe and Sheets 2½¢ ₩ ℔.

American Pig	4¾¢
Bar	5 ¢
Pipe, subject to discount 20 %	6¼¢
Tin-Lined Pipe, subject to discount 20 %	15¢
Block Tin Pipes, subject to discount 20 %	37½¢
Sheet, subject to discount 20 %	7¢

Old Lead in exchange, 3 ¼¢ ₩ ℔.

Solder.

½ @ ½ (Guaranteed)	12¾¢
No. 1	11¼ 11¾¢
Extra Wiping	12 @12½¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson	₩ ℔ 15½@ 16 ¢
Hallett's	" @ 12½¢

ALUMINUM.

Prices Per Ton.

Duty: 15 cents per pound.

Over 98 % pure	₩ ℔ .75
94 % @ 98 % pure	₩ ℔ .65

Old Metals.

Prices Paid in New York.

Heavy Copper	₩ ℔ 10 ¢
Light Copper	₩ ℔ 9 ¢
Heavy Brass	₩ ℔ 7 ¢
Light Brass	₩ ℔ 6 ¢
Lead	₩ ℔ 3½¢
Tea Lead	₩ ℔ 3½¢
Zinc	₩ ℔ 2½¢
No. 1 Pewter	₩ ℔ 14 ¢
No 2 Pewter	₩ ℔ 7 ¢
Wrought Scrap Iron	₩ gross ton $17.00
Heavy Cast Scrap	₩ gross ton 10.00
Stove Plate Scrap	₩ gross ton 7.00
Burnt Iron	₩ gross ton 5.00